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# NAVAL POSTGRADUATE SCHOOL

## Monterey, California



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### INFORMATION MANAGEMENT IN THE DEPARTMENT OF DEFENSE: THE ROLE OF LIBRARIANS

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July, 1983

Proceedings of the 24th Military Librarians Workshop  
Monterey, California, October, 1980

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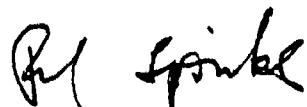
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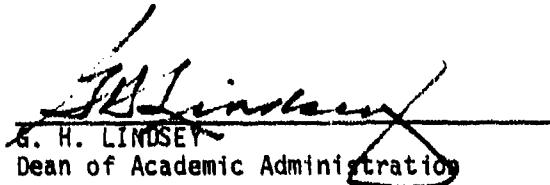
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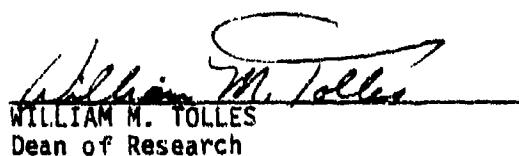
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INFORMATION MANAGEMENT

IN THE

DEPARTMENT OF DEFENSE:

THE ROLE OF LIBRARIANS

Proceedings of

the

24th

MILITARY LIBRARIANS WORKSHOP

15-17 October 1980

NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

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## PRINCIPAL SPEAKERS

Walter Blados  
Dr. George Gamota  
Dr. Forest "Woody" Horton  
Kenneth W. Hunter  
Jack Kolb  
Lee Power  
Hubert E. Sauter  
Douglas Ward

## MINI-SESSION LEADERS & SPEAKERS

### A. Fighting Obsolescence

Walter S. Burgmann, Leader  
Dr. Terence Crowley  
Dorothy A. Fisk  
James Johnson

### B. Managing Information Resources

Alice T. Cranor, Leader  
Carolyn I. Alexander  
Brian L. Beauchamp  
John P. Cummings  
Ruth S. Smith

### C. Marketing Information Resources

Barbara L. Collier, Leader  
Robert E. Bishop

### D. Contracting Out

Francis M. Quinn, Leader  
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Stanley Kalkus  
Ralph W. Lewis  
R. Paul Ryan  
MAJ Quentin M. Thomas

### E. Information Exchange

Peter H. Imhof, Leader  
Bill Dempsey  
Ben Saltzer



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24th MILITARY LIBRARIANS WORKSHOP  
15-17 October 1980

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Monterey, California  
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## OPENING OF THE 24th MILITARY LIBRARIANS WORKSHOP

Paul Spinks, Librarian  
Naval Postgraduate School

As host for the 24th Military Librarians Workshop, I am happy to welcome you all to the Monterey Peninsula.

This year, as in previous years, the participants are drawn from throughout the United States, from Europe, and from Canada. They represent all types of activities -- laboratory, research, medical, and academic. Each library has its own distinctive character, shaped in no small measure by the mission of the organization served. Nonetheless, we all have a great deal in common, for we are trying to reach goals, either self-imposed or mandated, in the face of many difficulties which seem constantly to arise and which are as vexing to the administrator of a small library as they are to one who is responsible for collections numbered in the hundreds of thousands.

The theme this year, as conceived and developed by the Program Committee, is one to which every participant can relate, whether he or she runs a modest or an extensive operation, for it deals with effective information management and the optimal exploitation of resources in the face of challenges, both old and new.

If you cast your minds back no more than a decade and compare earlier administrative problems with current problems, it is apparent that today's responsibilities are broader and, at the same time, more complex. To mention just one or two, we have the stark reality of

spiralling inflationary trends. Then there is what might be described as the law of rising consumer expectations. Generally, there appears to be a higher level of sophistication on the part of library users whose qualitative and quantitative demands unquestionably outweigh those of their predecessors, a trend influenced in no small measure by the emergence during the past few years of many computer-based services. This, in turn, calls for highly refined professional expertise on the part of military librarians who serve their respective communities. Examine, for example, the library literature of the 1960's, with its articles arguing the merits and demerits of automation. Twenty years ago it was something which appeared to lie in the future for the majority of librarians, anticipated with eagerness by some and cynically rejected by others. Today, our concerns are centered not so much on approval or disapproval but rather on keeping pace with current developments.

Referring once more to the trend of rising consumer expectations, it is in itself a healthy sign, for it means that our services and collections are being heavily utilized. The problem, though, is one of coping with today's demands -- demands which will unquestionably grow with each passing year, and of keeping abreast of the technological state of the art. The biggest problem of all, however, is that of dealing with the trends just mentioned when resources, particularly in the area of staffing and funding, are rarely commensurated. This matter, and other related matters, will be addressed during the course of the Workshop.

I can safely promise you two-and-a-half quite intensive and profitable days. I say profitable because we have outstanding speakers who will be addressing us today, tomorrow in the respective mini-sessions, and on Friday morning. All of them will contribute significantly to the Workshop. The speakers, I might add, have, like the participants, come from various parts of the country and from diverse activities. They come from the Department of Defense, from other branches of the Federal Government including the General Accounting Office and the National Aeronautics and Space Administration, from industry, from the academic world, and from the field of library networking. The Program Committee and mini-session leaders are to be commended for their successful efforts in bringing these speakers to Monterey.

Finally, I would like to express my sincere thanks to those colleagues at the Naval Postgraduate School and elsewhere who have expended a great deal of time and effort in order to guarantee the success of this Workshop. I am referring to the members of the Executive Board, the Program, Arrangements, and Registration Committees. My thanks also go to the Proceedings Committee which will go into action after the Workshop ends, to the principal speakers, mini-session speakers, and mini-session leaders.

Ladies and gentlemen, I welcome you once more to the Monterey Peninsula and the 24th Military Librarians Workshop.



#### WELCOMING ADDRESS

Rear Admiral John J. Ekelund, USN  
Superintendent  
Naval Postgraduate School

It is a great pleasure and an honor to have been asked to come and welcome you to beautiful Monterey. I note that twenty years have elapsed since you were last here. I can't imagine someone spending twenty years and not having returned to Monterey.

I certainly am pleased to have been given the assignment of Superintendent of the Naval Postgraduate School. I think it is one of the best jobs that the Navy has, and I think it is also one of the most important jobs, not in the sense that it has great visibility or that I make major decisions about weapons systems procurement, but in that we influence and affect junior officers who later make major decisions about weapons systems procurement. That is more important. If we do our job right, they'll do their job right and, for the long haul of national defense, this is a tremendous investment in our future.

I have long been aware of the plight of libraries in our military institutions. I'm not familiar with all of your problems, but at the Naval War College and at the Naval Postgraduate School we suffer the usual problems of inadequate numbers of professionals and lack of proper support for them in the budget. In fact, here we have an additional problem. Although we have a new library, the collection we

have is outgrowing that library and we need space desperately. We have a new building program in the mill which may be many years in coming. Our original library design was for a much larger facility, but for economy it was reduced in size, inevitably producing a short-fall of space in a very short time.

The problems of justifying an adequate workforce to support the kinds of work that we do is a never ending problem. When there is competition with these demands for manpower and money, those who do not think far enough ahead tend to degrade the value and the contribution of a library. For us it seems obvious; for us particularly who deal in an academic environment, the library is the absolute engine and central device for the institution.

Our library, like many of yours, has a large classified section which adds to the complexity of its operation. We support a student body of over 1,250 students. All of these students are working at the graduate level. All of them must produce a major thesis, and they are heavily involved in demanding library service support and access to library materials. It is becoming increasingly difficult as our student body goes up and our assets remain fixed to meet those requirements. We have a library holding a collection of over one-half million volumes at this point, and it will inevitably grow to keep pace with technological developments (which are growing at an ever-increasing rate). What you are seeing now is just the beginning of technological development which will generate in an academic institution a need for that technology to be documented and accessible. Professional librarians face a fantastic problem in keeping pace with and efficiently controlling the dissemination of that information.

I would like to say just a word about our School. The vast majority of students are Navy and Marine Corps officers. We do, however, have over 100 Army officers who are in various programs, a little over 50 Air Force officers, plus Coast Guard officers, National Oceanic and Atmospheric Administration personnel, and civilians from the Department of Defense. The international officers number over two hundred. They are excellent students with some difficulties in the English language but no difficulties in the basic tools that they bring to our programs.

The programs that we offer here cover a very broad range, primarily science, engineering and management science, with national security affairs and intelligence included. We offer aeronautical engineering, electrical engineering, mechanical engineering, operations research, computer science, the area studies in the national security affairs area, intelligence, weapons engineering, meteorology, oceanography, air ocean science, systems technology programs in antisubmarine warfare, electronic warfare, and command, control and communications.

These are all conducted at the graduate level. The vast majority of the students earn a masters' degree in their field. We have a small doctoral program, and then a larger number of students who earn engineers' degrees in the full array of engineering disciplines which we offer.

It is a stimulating experience which in the main is the officer corps, the very carefully selected officer core, of our services. Each student has about five to seven years of experience behind him, has reached the decision to make the service a career, and is now pursuing work to give him added capabilities in a subspecialty field. There are very few, if any, motivational problems. It is fantastic to deal with an eager, enthusiastic group, the members of which are very excited about their new chosen field and who work extremely hard to develop the tools necessary to meet the challenges of the future.

Of course our library is central to that whole effort, and we appreciate the staff which works so hard to support it.

We are delighted to have you in Monterey and the Naval Postgraduate School is delighted to sponsor this annual Workshop.

Thank you.



## INFORMATION MANAGEMENT: CHALLENGE AND OPPORTUNITY

Joan Ingersoll  
Naval Ocean Systems Center  
Chairman, Program Committee

In previous Military Librarians Workshops, the major issues of library science as they apply to the DoD environment have been thoroughly discussed and documented. These programs have emphasized improving and enhancing our well-established, traditional operations including everything from better personnel management to the application of new technologies to resource sharing.

Discussions at these past meetings have indicated how all of us are faced with both increasing and changing demands for our services. These demands are often coupled with dwindling personnel and monetary resources. The good old days (if they ever really existed) are gone for good. In spite of our dedication to the advancement of the tools and techniques of our professions, we have often been frustrated in competing for staff and money.

Because of these considerations, the Program Committee has chosen the theme of information management for this year's program. As we move into the information decade, it is time for us to consider better and more effective utilization of the existing information resources within our own organizations. We must better understand and educate our users as to the availability, value, and potential uses of information. We must better comprehend the flow of information in our organizations, and we must recognize the need for coordination among

all the information handling and processing segments in our organizations.

The Workshop speakers have been selected to present both a broad picture of information management and some very specific aspects. This morning we are going to hear a discussion of information management concerns in DoD, including present and future policy concerns: the impact of new policies on information organizations such as technical libraries, and the role of the DoD librarian as a participant in information policy planning. We will learn also about current policy activities regarding federal information management, with emphasis on the social, economic, and political factors that underlie these activities. The purpose, function, and responsibilities of information managers will be explained by a well-known consultant experienced in both government and non-government information problems. We are also going to have the opportunity to hear from OPM on civil service qualification standards for information professionals, including the new librarian standards.

This year's program is dedicated to providing a consciousness raising experience for us all. It is time that we advertise the fact that we have the know-how to guide others through the information maze. If we don't assert ourselves and strongly identify our capabilities and interests, then someone else is going to get the prize for processes that librarians have been perfecting since Callimachus cataloged the library at Alexandria. We need to develop some marketing techniques and become advocates rather than custodians. The Program Committee hopes you will find this year's Workshop to be a valuable opportunity to hear about and discuss non-traditional approaches to our profession, and more significantly, a challenge to define our role as librarians in the emerging field of information management.



**INFORMATION MANAGEMENT:  
CHALLENGE FOR DOD MANAGERS**

Dr. George Gamota  
Director for Research  
Undersecretary of Defense for  
Research and Advanced Technology  
(read by Paul Klinefelter)

I'm very sorry that I cannot be here speaking with you in person. Unfortunately, we're still having budget problems, and I have had to remain in Washington. To insure that my spirit is with you, I have asked Paul Klinefelter to read my speech. Furthermore, I want to extend to you an invitation: If you are in Washington and wish to talk to me about your concerns, stop by. My door is open.

I am, in fact, very pleased to speak at the Military Librarians Workshop, even on a proxy basis. Its theme, "Information Management: Challenge For DoD Managers", is of special concern to me because of the profound impact technical information resources have on the research and development effort of this country, particularly in these extremely volatile times. Further, I'm interested in the approach your program takes in developing this theme--lay it out for DoD and follow with talks from the true masters in the techniques of government operations.

As the Defense Department's "information central", for research and development, efforts at information resource management, however competent, would mean little without strong and well-managed support from the respective military services. Their representatives are also here to present the various aspects of their service programs. The topics for your discussion groups address significant aspects of what

you can do to utilize these very large and significant DoD information resources which are created and maintained on your behalf.

First, let's situate me and the Department of Defense. I am Director for Research under Dr. Arden Bement, who is the Deputy Under-secretary of Defense for Research and Advanced Technology. He, in turn, works for Dr. William Perry, number four in the Department of Defense, responsible for all DoD research and development and acquisition. My job was already a full and demanding one, but some things have happened recently which have given me additional responsibility for technical information resources in the Department of Defense. Last year, Dr. Ruth Davis and Andy Ames developed a comprehensive plan for the management of technical information programs in the Defense Department. They both subsequently left, however, for the presumably greener fields of the energy program. Their plan remains to be set in motion. That is where I come in, since Dr. Bement has transferred the responsibility for the DoD Technical Information Program to my office.

Second, let's present a couple of questions and answers that will establish a common basis of interest. Let's again consider the theme of the Workshop, Information Management in the DoD: the Challenge and the Opportunity, and what your role is. I'm familiar with the very honorable history of this Workshop and the considerable record of accomplishment in its twenty-four year history. That period has seen librarians and technical information specialists acquire an importance to the Defense Department far above anything they or the management levels of the DoD could have foreseen. The challenge in your theme is real.

Our country is involved in a life or death struggle to maintain the military defense of this nation at a level which can insure its safety. Technical information and information resources may have been poorly understood by the general public, until recent years. This is no longer so. Congressional debate over effective real-time communications and the brutal reality of our recent wars have made the American public aware of the importance of technical know-how and the relative effectiveness of the military research and development programs among the major powers.

We have an opportunity to use this forum, which assembles knowledgeable people from all parts of the DoD, to attempt to define the truly important issues in information resource management and to develop appropriate answers to the problems involved.

What is our role in DoD in order to affect information resource management? This is a very important audience with which to explore this issue, since you are, or must soon learn to be, DoD information resource managers. Back in the early 1960's someone theorized that

there were four basic categories of technical information in the Defense Department. One type was intelligence, or, as we in the Pentagon refer to it - G2, which had then and has now its own very complex but effective system for information management. For obvious reasons, most of their information is used only in that closed community for their own purposes. A second category was said to be logistics information, meaning specifications, engineering drawings, instruction manuals and the like. This system still has a long way to go and is essentially handled by the individual military departments and agencies.

A third category, command and control, was only a concept in the early 1960's. It was in the development stage in the 1970's and is now in the implementation stage. Today, that function has been expanded to include command, control and communications intelligence, or "C3I." The fourth category, the one that is our bread and butter, is research and development. It had a central depository in DTIC when it was DDC, and it operated in a fairly well organized manner, with regulations which required data submission to this central depository at DDC/DTIC. That system was very inefficient, in that the information resources available to the Defense Department were incomplete, although automation has made significant improvements in the speed of retrieval. To some extent, the DTIC collections are incomplete today, and much needs to be done to bring DoD's technical information program up to the state-of-the-art.

As a scientist and researcher, I have always been aware of the difficulties in obtaining current and timely technical information and it was often of questionable quality when I got it. I am now intensely interested in what we can do, you and I, to improve information resource management in both quantitative and qualitative terms. One great disadvantage to our R&D information system, and it's not a system at all, is that it has grown by bits and starts, without proper attention being paid to the need for a complete and balanced source of technical information of all appropriate types. The channels for obtaining technical reports and bibliographic information about them have been fairly well understood for a long time. On the other hand, management information, on-going research projects, research and development planning studies and analyses, and the like have been organized as information resources much more recently. They tend to be incomplete. Consequently, our efforts to maintain an effective DoD research and development program and to explain it well to Congress have suffered.

In my view, part of the problem is that some of you, as technical librarians, or as information resource people in any sector, don't consider that both of these informational areas, bibliographical and management, are your responsibility. This situation will not change. It won't go away. You must learn new skills and sources. We must

develop an integrated network of information resources and services which addresses both areas. You must get the users to work with you.

I am aware of your joint efforts in developing and using the on-line terminals from DTIC which give you a relatively quick access to data bases to respond to local problems. I also know the various technological breakthroughs which bring our technical information program closer to a truly responsive information network. Many of your efforts are complicated by the necessity to protect large amounts of classified and sensitive information which we are required to control.

We've learned to live with the Freedom of Information Act, which, for all its good intent, causes difficulties. We also have to live with the protection of many categories of information whose release to an unfriendly government could be dangerous to us. I regularly see requests for technical information coming from recognized communist front organizations. I find many of the regulations which govern the jurisdictional control and dissemination of technical information within DoD to be inconsistent, archaic and much in need of revision. This revision process has been started, but it's very slow, and it will be awhile in coming to fruition. I plan, however, to concentrate my attention on this problem and hope to be able to resolve it.

I want to mention other areas where I feel concentration of effort is needed. Currently, DoD libraries are faced with the difficulties of the inevitable transition to electronic media and methods. This transition requires, in fact, it demands attention to joint planning. For instance, it may be essential for DTIC to function as a DoD broker in procuring commercial data base access and services at favorable rates, much as the Federal Library Committee does for certain sectors.

Also, standardization to facilitate data transmission and exchange needs to be pushed. Building on the efforts of the 1960's, information sharing must be expanded, and cooperative joint ventures to accomplish one-time processing of information must be implemented in order to eliminate duplication of effort. One excellent beginning made in this area is the shared bibliographic input experiment involving the DTIC on-line system and a number of its major users.

I believe that the DoD technical information program needs a change in emphasis. This new emphasis must serve research and development needs to an ever greater degree by delivering relevant information upon request. This is quite different from the current practice of providing an identification of documents containing information (or which are likely to contain them), with subsequent delivery of the documents themselves. You must help develop an interactive system, not just settle for passive information retrieval.

I would like to quote an extract from the President's statement on 26 October, commenting on the report of the White House Conference on Libraries and Information Services:

"The biggest challenges rest with the library and information community. I believe we have used libraries too narrowly. The needs of our increasingly complex society can only be met by libraries actively providing access to the great variety of information they have..."

This is from the presidential summarization of that important and unique conference.

I feel extremely confident in the eventual resolution of some of these difficult problems when I attend meetings like this one of knowledgeable, motivated, energetic and forward-looking professionals, who are willing to work toward creation of a technical information system that is the responsive, fast-reacting network of services which is so urgently needed by the Defense Department. I can assure you of the great interest Dr. Bement and I have in your problems. We will work together with you to develop the means of support necessary to improve the DoD technical information system. However, the most important aspect in improving these services is you, and particularly this ranking peer group of managers and "doers". You are the custodians of information, after all, and you must be involved in the planning for the comprehensive technical information system required.

With this in mind, I have asked you all to help me organize a DoD technical information conference next January. Participants will be technical information specialists, engineers, scientists and R&D managers representing the DoD military departments, DoD agencies and DoD contractors. Resource people and users will be brought together under one roof and will begin a long overdue dialogue at a top level. The purpose of the conference will be to provide an initial mechanism for input to, and consideration of, a comprehensive DoD technical information program.

The goal is to provide visibility and to elicit support from scientific and technical management decision makers and to identify and prioritize major issues confronting this program. This, in turn, will allow me to direct tangible areas of priority effort within the program as it evolves. The problems of technical information resources management in DoD offer a tremendous challenge. The opportunity provided by technological advances, and above all by our joint efforts to improve the system, must not be missed.

Thank you.



INFORMATION MANAGEMENT:  
RESPONSIBILITY  
OF  
THE FEDERAL GOVERNMENT

Kenneth W. Hunter  
Senior Associate Director  
Program Analysis Division  
U.S. General Accounting Office

At your conference last year, at one of the sessions, I had the pleasure of discussing the nature of information research services that I expect to be available by 1990, and how I would use them for national policy research and oversight. Today the focus is on management of our information resources, so now I can talk about the management aspects of getting to 1990 with the services I talked about last year. I find that a challenge.

I will use my time here with you today to reflect on the activities of the past few decades and then give my views on the 1980's for information managers.

I would like to look at Information Resource Management (IRM) from two perspectives: first, from an input side, from the disciplines that contribute to it (see Chart 1); and then from the output side and what the information resources contribute (see Chart 2).

Professor Masuto, along with a small group of others, was in charge of information management in Japan when he came to the United States in 1969. He wanted to talk to his counterparts here. At that time there was a group at the National Academy of Sciences, the Computer Science and Engineering Board, which was the closest thing to something comparable, if only in order to get together with someone who could talk about information as a national resource and develop strategies for using that technology over the next two or three decades. We had to

draw together a group of about ten to twelve people, and we had what I would consider all of the information resources managers of 1969 in the United States in that one room. Mr. Masuto was shocked because we were introducing ourselves to each other -- many of us hadn't met before. That was the state of things in 1969. You know where Japan is today.

Let's look at the factors that are probably working against us. First, there is obviously the competition among all of the disciplines and groups, each coming from its own academic and institutional background. No one wants to give that up, but we are dealing with something here which is a truly multi-disciplined entity, and therefore I think we will have difficulty getting people to think about information as a resource. Fortunately, we have had "Woody" Horton and others writing and talking on this extensively and getting groups like this focused on it as an issue. We are making progress!

The other difficulty, probably even more complicated, is simply our inability to define and focus management's attention on this thing. It isn't really a crisis yet, and, therefore, it is still lacking some of the focused attention that crises bring. We will get there one of these times, but we haven't gotten there yet.

Another aspect of those two factors is the question of leadership. What discipline is going to come to the front and in 1990 be the strongest one? From the resources and the input side we have a lot of factors. Let me now shift to where we stand in terms of our relationships with those to whom we provide services. I view what we are doing as a support function, and for a couple of decades now I have consistently used the word "services" rather than "systems" to instill that attitude in the people who are performing these kinds of functions. Many of the things we do are not systems. We give them the label "system", but really, if you could focus the people on what they are doing and the output side, then it looks more like a "service". This group doesn't have that problem. You run into that more with the data processing people who just have to put system boundaries on everything and square corners.

I think we are going to be judged, and rewarded or punished on the quality of our services, so how well we support the institutions that we are a part of and how well we carry out their mission is going to define what we look like in 1990. As you are well aware and has already been mentioned this morning, the competition for resources in this decade is going to be rather severe. How well we do will show up in the reward system directly in our budgets.

There have been in the last couple of decades a number of attempts, with varying degrees of success, at getting groups together. One of the most rewarding things for me in the last year has been to speak to groups like this, because so many times before we couldn't get this many people to talk about this subject anywhere.

The efforts began several decades ago with the Federal Library Committee, the original FIRMCO, and now the Federal Information Managers Group. Some of these in one form or another are, fortunately, still going on. The individual agency efforts, DTIC, NTIS, ERIC, have all been important events and activities, but the ad hoc efforts and the individual agency's efforts, to be lasting, have to get into the law, because we are run by the statutes. Eventually, if you don't have a statute, you continue to be viewed as ad hoc, and whatever ad hoc means, "it ain't quite the same"!

Take a quick scan of the United States Code. There are sections of the Code which deal in one way or another with what we are now referring to as information resource management. In Title 40 we have sections on telecommunications and ADP and the Federal Information Centers. In Title 31 we have the statistical programs. In Title 44 we have the management type of function, the federal reporting services, which is the focus of what is being amended right now, and the records management functions. In Title 5, which are the administrative procedures, we have the Freedom of Information, Privacy and Sunshine Acts.

It is important to realize that in every case this legislation is embedded in a title of the Code which deals with something else, not information management. There isn't a title of the U.S Code that you go to and pull out and say, "This is the law on information resource management". It didn't grow up that way. It came out of communications and statistics, reports managing and the administrative procedures. That is where we have to deal with it, because that is where it is.

The amendments to this legislation in the last twenty years have reflected several things. One that you are well aware of is the opening up of government. It is not limited to the information systems; it has to do with campaign financing, opening up on Congressional operations, as well as the specific statutes that you have to implement. Another thing that comes through has been a desire for greater cooperation, consistency and uniformity. You can find all those words in the standards sprinkled throughout the legislation. In fact, if you look at the introductory language of the existing section 3501 of Title 44, which deals with coordination of federal reporting services, you will find a very fine statement of principle about coordination and management and leadership and all of that. However, that language was created in the late 1960's, and nothing happened, so today you have a bill (which "Woody" Horton will talk more about), which overhauls that group of sections and assigns very specific responsibilities. In many fields, Congress has had to do that in the last few years.

Congress tried in earlier times to legislate in principle and give somebody responsibility, and nothing happened. As a result they had to come back again, create a commission to come up with specifics about what ought to be done, and then write a law which directs people to do it. I get irritated at times when people talk about Congress

micromanaging the Executive Branch. In almost all cases where they are micromanaging now, it is because of a failure under some earlier legislation to carry out a specific charge.

I don't agree that Congress ought to be micromanaging, and we have on many occasions in the past year testified in opposition to things like the legislative veto and in favor of Congress dealing at a greater policy level, but the fact is we end up supporting micromanagement. We just supported the proposal for the limitation on year-end spending which you are going to have to deal with in this coming year. I was opposed to it in principle, but when we looked at the statistics, the fact was that there is a very large surge in year-end spending. It has been getting worse. There was no program to deal with it, so we ended up supporting, on a temporary basis, the use of a limitation on year-end spending which is going to cause havoc for people in the Executive Branch. I am sorry about that!

Also you can see through this array of legislation (see Section C: Basic Statutes Concerning IRM, following text) that there was a lack of appreciation for the technical and institutional interrelationships among these pieces. They're still embedded in their own parts of the law, and the crosswalks among them just do not exist in the law, or until very recently, in the implementing instructions either. So we came into the early 1970's with this kind of a situation.

In 1974 there were a couple of important events. One was the creation of the Federal Paperwork Commission, which was given the charge to deal with this issue. Another was the passage of the Congressional Budget and Impoundment Control Act, which included a number of provisions dealing with reporting, at least at the policy and program levels, and some specific sections requiring creation of directories of information sources. The frustration at the time was that Congress could not easily find what it wanted--I don't have to tell you people about that problem. You are the professionals at that. But the frustration was in finding some way to cut down the number of telephone calls in order to find information on one program. A solution would mean a tremendous saving in time and in resources.

Now when we look back from 1980 to 1975, we find that we do have the directories; that did not turn out to be the important thing. We have thousands more staff people in Congress than we had then, so probably the total number of telephone calls has gone up dramatically, but the average per person is down.

The more important thing that has been dealt with that 1975 did not have is the clarification of the institutional relationships between the executive and legislative branch and the institutional roles in the Congress, as a result of creation of the budget committees and the Congressional Budget Office. We now have in place the people who can deal with the substance of the budget and the policymaking of the federal

government. They are tremendous drivers of the information requirements, and the balance has shifted, in my judgment.

Bringing us up almost to the present, we have the Paperwork Reduction Act of 1980, the immediate status of which neither "Woody" nor I is sure of today; we haven't been in Washington. We were not there the last few days of the endeavor, but we don't think it passed. That Act and how it deals with many of these issues I will leave for future discussion. Then, of course, we have an OMB proposed policy directive again dealing with many of these same issues.

I would like to talk briefly about GAO's involvement and what we do. We issued over seventy reports in the last five years which deal in one way or another with information resource management. I would expect many of you to run into GAO auditors everywhere. I seem to find them everywhere! The reason is that we are scattered around, not only nationwide, but worldwide. We have several overseas offices. The subject has gotten increased attention in the last few years, so there are more people now, too. These people are working under a strategy for evaluating the way that the executive branch is carrying out many of these responsibilities. They are organized at the present time into five groups.

The first group is focused primarily on the creation, protection, access to and disclosure of information. The next group is concerned primarily with acquiring and managing of the automatic data processing resources or the hardware/software aspects, and the third group is focused primarily on the statistical and paperwork implications. Another group is dealing with communications. The fifth group is concerned with Congressional information requirements. These five areas are the focuses that the GAO is taking.

We do have a very elaborate coordination and planning process which gets us committed to these kinds of reviews over a one-, two-, three- or more- year time period. We have a planning committee and a matrix management approach which assures that these five groups are communicating with each other also. It is a fairly sophisticated management operation.

First, we hope that there are common threads that come out of our various reports, even though we are focusing on a particular issue or a particular agency, so that there is as much consistency in the approach that we are taking as is possible. We try to make it a very long term perspective that is reflected, as well as one of institutional change over time, through efforts such as the Paperwork Commission, and all of the legislative and administrative proposals that have come from that. We think these things need time to be developed and to be integrated into the law, because, in the final analysis, the law is the basic guidance and authority for everything we do.

Let me take just the last minutes to look ahead a bit, to give a few thoughts about what is going to affect us in the 1980's. I believe that there will be a continued shift from concentration on the inputs to processes, services, and results. As I mentioned at the beginning, we are going to be judged on how well we provide services on the output side of our equations, and hopefully less attention will be aimed at the hardware, software, and rather technical kinds of procurement issues.

Secondly, I think there will continue to be merging of the information activities with other functions in an organization. Thus, the boundaries are going to get even fuzzier. Take any subject area, such as health care, where information and computer technology and all of the things that we think of as information and information-related are getting pulled right into the actual performance of health care services. The distinctions are going to continue to get very, very blurred. If we don't talk about managing the whole program in terms of the mission we are trying to carry out, we will probably be missing the main point, and we will end up managing a piece of something, rather than the whole.

Thirdly, I would like to share my perspective on the 1980's and the environment we are going to be going through. If you are a student of economic cycles, long-term cycles, then you would probably believe that we are at an industrial peak right now, and we are going down. That is, our major old-line industries are going down on a regular fifty-year cycle, and new industries are emerging at prior points. This occurred in 1930 and the late 1920's. You have now a similar problem of mixed signals, because you are getting signals from the biggest part of the economy that are giving signs that you ought to be continuing up, and you are thrashing to try to keep the momentum in those industries like auto and steel. In reality, those industries are phasing out and changing character, and other industries are emerging. However, those other industries are so small statistically when you look at the economic indicators that they don't influence it very much. So you are making judgements, if you look strictly at the aggregate economic indicators, probably on the wrong thing. That will continue through most of this decade before we reach another state of some statistical stability.

If that is the case, then we custodians of the numbers and now providers of information ought to caution our users that any information or statistical series or trends or analyses that were performed in earlier times or are based on earlier times should be suspect; they may not be applicable in the 1990's and beyond. That is going to make our life a bit more difficult, because we are going to be criticized for the "errors" in the analysis. I think the most important thing is to give them the warning signs along with the numbers.

The fourth area is the continued effort that any administrator performs in the federal government. I expect that we will be able to finish some of the work of the 1970's in this decade. We may even have to have some more commissions to do it, but it is a good way to get it done. The Congressional Budget Act of 1974 dealt with the institutional roles between the executive and legislative and did not deal with the numbers and the concepts that underlined the budget, the quality of the information which I was talking about a few minutes ago. We hope to address that in the next few years.

The fifth point in the area of government administration deals with oversight reform or sunset legislation. We have gotten to the point now that we know the kind of legislation that we want, and we have bills at advanced stages in both houses. Maybe next year we will get it. However, many of the individual features of that legislation can be implemented without legislation; because people already have enough authority (which is a point I made earlier), and, if you go back and look at some of that old law, it is pretty good. It just didn't tell you how to do it. It is broad enough that you can find the authority there. Creative lawyers can help you do that.

Next is regulatory reform and grant reform. Both of these deal with simplifying and streamlining the relationship between the government and industry, and state and local government. The paperwork implications are significant influences in both of those reform measures. The symptoms of neglect in managing the execution of the federal budget are things like problems in contracting and procurement and year-end spending. The issues that you are going to be faced with, in terms of limitations on your ability to contract out and limitations on your year-end spending, are the results of reaction to a symptom; and the symptom was neglect of simple management of budget execution and preparation in adherence to sound financial plans. The legislation requiring that and the responsibilities in the executive offices of the President and in the individual departments have been in the law for decades. It is very clear you don't need any new forms. You don't need any new reporting; somebody's just got to use what is there, and it is not being done. We and the Senate Appropriations Committee are going to be beating on this, fiercely, in the next couple of years.

The seventh point is a concerned interest in the necessity for taking a longer term perspective on the decisions we are making. We have from industry the techniques of strategic planning and from other groups futures research and environmental scanning techniques, all of which are now available and beginning to be used. We are going to be advocating and experimenting with that.

The most rewarding activity I had this summer was to participate in the first Global Conference on the Future, last July in Toronto. For a futurist like myself, just coming out of the closet, having our big Global Conference for the first time was a very exciting thing. It was

backed up by the release in July of the report to the President called "Global 2000 Report", which is probably the most important public document of this nature issued in the last twenty years. There is going to be a lot of activity in that area, as much activity as we can get into it.

The other reform is the implementation of civil service reform. It is terribly important that this be done well, because what we look like in 1990 will depend on the quality of the people doing it and the quality of people who are working on it now. I would like to do everything possible to build in the rewards for doing it well.

Lastly, where we are at the end of this decade will depend upon how well we use the limited resources we have. We will be constrained; all of these laws and rules that are on the books, and that are coming, are going to be there. What I would like to see us have is a view of the services that we are providing, from a management perspective, that we can describe and defend in a context that says we are helping government and the society function better. If we can do that, somehow we can justify removing the constraints. The burden is on us, first, to prove that we can deliver services, and, if we can deliver on the output end, the legislators will be willing to begin to drop these nitpicking pieces of legislation that they keep passing.

Thank you.

There is time for a question or two. The "Global 2000 Report" is available from the GPO. I ordered fifty copies for my staff, and I have ordered another twenty copies just to give out to people, because I agree with you that everybody should have it. I would like to see copies in each library and have it sitting out permanently, so that, as people walk in the door of the library, they can look at it. It's that important! It is also very depressing reading. Things don't look good.

The next question deals with the problem of actually increasing the cost of your immediate operation and GAO's endeavors to "reduce" cost. The question of "What is cost?" has plagued accountants ever since there have been accountants. Our definitions aren't any better now than they were then, even though we are very sophisticated at manipulating the numbers. The answer is to focus on your outputs and the services you are providing.

We will be advocating user charges in many cases, for the purpose of having the costs being borne by the entity that is the consumer of the ultimate services. A good technique is to develop the charge system anyway and, as a minimum, advise people of the value of the services you are providing them. They get the product, and, although they don't have to pay for it, they should know what the cost is. That puts you in a position of statistically saying where the increase came from

in terms of the services you are providing. It does not prevent your costs from increasing, but it makes it easier for you to explain why they are increasing. Unfortunately, we have been managing the other end; that is, the acquisition of hardware and software, rather than managing the service products.

Thank you again.

(The following is a "Discussion Outline" of the major points of Mr. Hunter's presentation, as well as the two charts referred to in the text of the talk. The outline includes specific information on the business of information and the agencies and basic statutes concerning IRM. The attached bibliography, "GAO Reports on Information Management", was also furnished by Mr. Hunter.)

DISCUSSION OUTLINE  
ON  
INFORMATION MANAGEMENT:  
THE RESPONSIBILITY OF THE FEDERAL GOVERNMENT

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I. INTRODUCTION - THE MANY PERSPECTIVES OF INFORMATION MANAGEMENT

- A. Disciplines Contributing to Information Resource Management  
(See Chart 1).
- B. Information Resource Management as a Supporting Function  
(See Chart 2).
- C. Librarians as Practicing Information Managers
  - 1. Continuously assess information needs of user population.
  - 2. Allocate resources for use in collecting, processing, storing, retrieving and disseminating information to meet those needs.
  - 3. Develop/establish methods for best serving the user population.
- D. Federal Government is in the Information Business
  - 1. Major supplier and user of information.
  - 2. Spent almost half of the ten billion dollars spent on scientific and technical information nationwide in 1975.
  - 3. Collects three hundred billion individual data items per year costing perhaps one hundred billion dollars or more.
  - 4. Doubles the creation of new records every five to seven years.
  - 5. Stores thirty eight million cubic feet or ninety five trillion pages of paper records in its agencies, Federal records centers and libraries.
  - 6. Expends more than two hundred fifty million dollars a year to store paper records.
  - 7. Spends fifteen billion dollars annually on ADP resources.

II. AS MAJOR USER AND SUPPLIER OF INFORMATION, FEDERAL GOVERNMENT HAS CONCERNS REGARDING INFORMATION'S MANAGEMENT

- A. Informal/ad hoc efforts have addressed these concerns.  
Examples:
  - 1. COSATI (Committee on Scientific and Technical Information)  
-- Established in 1962 and dissolved in 1973

-- Coordinated Government-wide scientific and technical information activities

-- Composed of representatives from major research and development agencies

2. FLC (Federal Library Committee)

-- Established in 1965

-- Serves as focal point for coordinative and cooperative programs among Federal libraries and information centers

3. AFFIRM (Association for Federal Information Resources Management - formerly FIRMCO)

4. Federal Information Managers Group

B. Agency Efforts to Manage STI

1. Defense Technical Information Center (DTIC)

-- Purpose: The Center (DTIC) is the central repository for the Defense Department's collections of research and development in virtually all fields of science and technology, involving subject categories ranging from aeronautics to zoology.

2. National Technical Information Service (NTIS)

-- Purpose: The file contains bibliographic citations of U.S. Government-sponsored research, development, and engineering reports, computer products and inventions available for licensing. Selected state and local government reports are also included. It is a purpose of NTIS to disseminate to the public information products from U.S. Government agencies.

3. Educational Resources Information Center (ERIC)

-- Purpose: The Center (ERIC) was established under the Cooperative Research Program (Public Law 83-531), as amended by Public Law 89-10. ERIC is a nation-wide decentralized information network for acquiring, selecting, abstracting, indexing, storing, retrieving, and disseminating the most significant and timely education-related reports.

C. Basic Statutes Concerning IRM

- 40 U.S.C. 757 - Federal Telecommunications Fund by GSA

- 40 U.S.C. 759 - ADP (P.L. 89-306) by OMB, GSA, and Commerce
  - 40 U.S.C. 760 - Federal Information Centers by GSA
  - 31 U.S.C. 18b and E.O. 10253 and 12013 - Statistical System by OMB
  - 44 U.S.C. 3501-3511 - Coordination of Federal Reporting Services by OMB
  - 44 U.S.C. 2901-2910 and 3101-3107 - Records Management by GSA and agencies
  - 5 U.S.C. 552- Public Information
  - 5 U.S.C. 552a - Records maintained on individuals
  - 5 U.S.C. 552b - Open meetings
- D. More Recent Systematic Efforts to Find out the Status of and Improve the Information Activities in the Federal Government
1. P.L. 93-556: An Act to establish the Federal Paperwork Commission (1974)
    - Affirmed Federal Government's policy to minimize the information reporting burden.
    - Established the Commission on Federal Paperwork.
    - Directed the Commission to examine and report on the policies and procedures of the Federal Government which impact on the paperwork burden in order to ascertain what changes were necessary and desirable in the Government's information policies.
  2. P.L. 93-344: Congressional Budget and Impoundment Control Act of 1974
    - Mandates the General Accounting Office to help Congress obtain and improve the quality of the budget and program information it must have to make informed decisions.
    - GAO information sources directories (See Chart 3).
  3. Paperwork Reduction Act of 1980 (H.R. 6410 as amended and S 1411)
    - Further affirms and implements Federal Government's policy to reduce its paperwork burden.

- Aims also at enhancing the economy and efficiency of the Government and the private sector by improving Federal information policymaking.
  - Provides for an integrated approach to Federal information management and creates a new management structure for the Government's information activities
    - a. Creates Office of Federal Information Policy in Office of Management and Budget responsible for setting Government-wide information policies and for providing oversight for the agencies' information management activities
    - b. Designates a high-level official within each agency who is accountable for ensuring that the agencies effectively carry out their information management activities
  - Establishes the Federal Information Locator System.
  - Includes reports clearance and paperwork control, statistics, privacy, automated data processing, telecommunications and records management
4. OMB proposed policy directive entitled "Improved Management and Dissemination of Federal Information"
- Appeared in June 9, 1980, Federal Register for public comments
  - Proposes a set of principles to govern the dissemination of and public access to federally financed information
  - Establishes an index of scientific and technical information to be managed by the National Technical Information Service
  - Addresses the issues of public access to federally financed information and the establishment or expansion of information centers by Federal departments and agencies
  - If adopted, goes a long way in bringing about the needed improvements identified in GAO's study of scientific and technical bibliographic services ("Better Information Management Policies Needed: A Study of Scientific and Technical Bibliographic Services," PSAD-79-62).

### III. GAO'S CONCERNS IN THE AREA OF INFORMATION MANAGEMENT

- A. GAO's concerns in the area of information management stem from the dramatic buildup in the Government's information activities and the limited attention being given this problem by public administrators. Due to the complexity of the issues, the growing concern of Congress and the general public about the ever-increasing paperwork burden being imposed by the Government and the subsequent changes in information technology trends, GAO directs their efforts toward encouraging Federal agencies to begin managing information as a basic, costly essential and valuable resource.
- B. GAO's view is that information must be collected, stored and made available for use in an efficient, effective and cost beneficial manner.
- C. GAO has prepared over seventy reports for Congress and agencies on information management in the last five years.
- D. GAO identifies and recommends ways for improving the Government's management and use of its information.
  - 1. Assesses the benefits to be achieved from improved management of information
  - 2. Highlights detrimental effects of mismanagement
  - 3. Tries to assist in developing usable approaches to effectively manage information
- E. GAO's major areas of concern
  - 1. Creation, protection, access, disclosure and management of Federal information
    - a. Efficiency and effectiveness of Federal agencies' information resource management activities and capabilities
    - b. Impact of automation on reducing information resource management costs
    - c. Effectiveness of agencies' efforts to improve their records management activities
  - 2. Economical and effective methods for acquiring and managing automated data processing resources
    - a. Management of ADP software

- b. Effectiveness of agencies in managing ADP resources to support agency missions and to reduce the cost of Government operations.
- 3. Statistical and paperwork implications of data collected from non-Federal sources
  - a. Improvements in the uses the Government makes of information it collects from non-Federal sources
  - b. Reduction of the burden of the Government's information demands
  - c. Improvement in the Government's management control over the information it collects
- 4. Adequacy of Federal planning for its communication needs
- 5. Improvement in the fiscal, budgetary and program-related information available to the Congress
  - a. Standardization of information
  - b. Identification, specification and monitoring congressional information needs
  - c. Obtaining and providing information for Congress and assisting in its use

#### IV. WHAT ARE LIKELY TO BE THE FACTORS AFFECTING IRM IN THE 1980's?

- A. Continued shift from concentration on inputs to processes, services, and results
  - 1. From acquisition, hardware, software
  - 2. To information systems and services and to support for missions
- B. Continued merging of information activities with other functions - boundaries will get fuzzier - and IRM will have to address entire program
- C. World in State of Transition and increased tension will put heavy demands on information and analysis services - we will be tested and we need to deliver timely, relevant, and quality products
- D. Many "reforms" will be enacted
  - 1. Further budget decision making reforms -- quality of budget information

2. Oversight reform -- systemic feedback on program performance
  3. Regulatory reform -- simplify reporting and impact analysis
  4. Grant reform -- simplify reporting and longer term financing
  5. Budget execution reforms -- feedback on financial performance
  6. Long-range planning reform -- monitoring and future research technology scanning
7. Implementation of Civil Service Reform
- E. 1980's are going to be a decade of severe constraint on the input side, many changes or "reforms" of the governmental processes, and high demand for timely, relevant and quality information services -- a real challenge for the information managers of today.

GAO REPORTS ON INFORMATION MANAGEMENT

<u>Title</u>	<u>Recipient</u>	<u>Report Number and Date</u>
Program to Followup Federal Paperwork Commission Recom- mendations is in Trouble	The Congress	GGD-80-36 March 14, 1980
Department of Agriculture: Actions Needed to Enhance Paperwork Management and Reduce Burden	Joint Economic Committee	GGD-80-14 March 10, 1980
Letter Report on Assessment of the Paperwork Burden on S. 2160	Senate Subcommittee on Federal Spending Practices and Open Government Committee on Governmental Affairs	B-129874 February 11, 1980
Letter Report on Assessment of the Paperwork Burden on S. 1782	Senator David Pryor	B-129874 February 11, 1980
Protecting the Public from Unnecessary Federal Paperwork: Does the Control Process Work?	The Congress	GGD-79-70 September 24, 1979
Federal Paperwork: Its Impact on American Businesses	Joint Economic Committee	GGD-79-4 November 17, 1978
Further Simplifi- cation of Income Tax Forms and Instructions is Needed and Possible	Joint Committee on Taxation	GGD-78-74 July 5, 1978
Better Management Needed in Exchanging Federal and State Tax Information	Joint Committee on Taxation	GGD-78-23 May 22, 1978
Letter Report on OMB's Federal Reports Act Responsi- bilities and the President's Reporting Reduction Program	Senate Subcommittee on General Services Committee on Govern- mental Affairs	GGD-77-38 May 25, 1977

<u>Title</u>	<u>Recipient</u>	<u>Report Number and Date</u>
Status of GAO's Responsibilities Under the Federal Reports Act	The Congress	OSP-76-14 May 28, 1976
Case Study of Department of Labor and Office of Management and Budget Activities Under the Federal Reports Act	Senate Committee on Government Operations	GGD-75-85 July 24, 1975
Problems in Test Censuses Cause Concern for 1980 Census	Chairman, Subcommittee on Census and Population, House Committee on Post Office and Civil Service	GGD-80-62 June 3, 1980
Letter Report on Federal and State Officials' Views on the Operations of Five Federal/State Cooperative Statistical Programs	Director, Office of Federal Statistical Policy and Standards, Department of Commerce	GGD-80-71 June 2, 1980
Problems in Developing the 1980 Census Mail List	Chairman, Subcommittee on Census and Population, House Committee on Post Office and Civil Service	GGD-80-50 March 31, 1980
Reliable Local Unemployment Estimates: A Challenge for Federal and State Cooperation	The Congress	GGD-79-79 July 27, 1979
After Six Years, Legal Obstacles Continue to Restrict Government Use of the Standard Statistical Establishment List	The Congress	GGD-79-17 May 25, 1979

<u>Title</u>	<u>Recipient</u>	<u>Report Number and Date</u>
Better Guidance and Controls are Needed to Improve Federal Surveys of Attitudes and Opinions	House Subcommittee on Energy and Power Committee on Interstate and Foreign Commerce House Subcommittee on Oversight and Investigations Committee on Interstate and Foreign Commerce	GGD-78-24 September 15, 1978
The Statistical Reporting Service's Crop Reports Could Be of More Use to Farmers	Senator George McGovern	GGD-78-29 April 13, 1978
An Assessment of Capacity Utilization Statistics--Strengths and Weaknesses	Representative John Y. McCollister	CED-77-3 October 28, 1976
Adjusted Taxes: An Incomplete and Inaccurate Measure For Revenue Sharing Allocations	The Congress	GGD-76-12 October 28, 1975
Conversion: A Costly, Disruptive Process That Must Be Considered When Buying Computers	Chairman, House Committee on Appropriations	FGMSC-80-35 June 3, 1980
Wider Use of Better Computer Software Technology Can Improve Management Control and Reduce Costs	The Congress	FGMSC-80-38 April 29, 1980
DoD Automated Materials Handling Systems--Need to Standardize and Follow GSA ADPE Approval Process	Secretary of Defense	LCD-80-49 April 24, 1980

<u>Title</u>	<u>Recipient</u>	<u>Report Number and Date</u>
Farmers Home Administration's ADP Development Project--Current Status and Unresolved Problems	Chairman, House Committee on Appropriations	CED-80-67 February 19, 1980
Letter Report on Review of Selected Computer System Procurements	Chairman, House Committee on Appropriations	FGMSC-80-34 February 15, 1980
Letter Report on Air Force Sole Source Computer Acquisitions Not Warranted	House Committee Government Operations	FGMSD-80-30 January 24, 1980
Letter Report on the Federal Highway Administration will Redesign Its Accounts System to Eliminate Inefficient Uses of Computers and People	The Secretary of Transportation	FGMSD-80-22 January 11, 1980
Contracting for Computer Software Development-- Serious Problems Require Management Attention to Avoid Wasting Additional Millions	The Congress	FGMSD-80-4 November 9, 1979
The Air Force Should Cancel Plans to Acquire Two Computer Systems at Most Bases	House Committee on Government Operations	FGMSD-80-15 October 26, 1979
Improvements needed in the Tennessee Valley Authority's Management and Use of Its Automatic Data Processing Resources	Chairman, Board of Directors, Tennessee Valley Authority	EMD-79-102 September 6, 1979

<u>Title</u>	<u>Recipient</u>	<u>Report Number and Date</u>
Letter Report on Problems Associated With Developing Large, Complex Data Processing Systems	House Committee on Government Operations	FGMSD-79-49 August 16, 1979
Flaws in Controls Over the Supplemental Security Income Computerized System Cause Millions in Erroneous Payments	The Secretary of Health, Education and Welfare	HRD-79-104 August 9, 1979
Better Information Management Policies Needed: A Study of Scientific and Technical Bibliographic Services	The Congress	PSAD-79-62 August 6, 1979
Data Base Management Systems--Without Careful Planning There Can Be Problems	The Congress	FGMSD-79-35 June 29, 1979
Letter Report on Acquisition of Automatic Data Processing Resources	Administrative Office of the U.S. Courts Federal Judicial Center	FGMSD-79-30 June 21, 1979
IRS Can Better Plan For and Control Its ADP Resources	Commissioner of Internal Revenue, Department of the Treasury	GGD-79-48 June 18, 1979
Automated Systems Security--Federal Agencies Should Strengthen Safeguards Over Personal and other Sensitive Data	The Congress	LCD-78-123 January 23, 1979
The Labor Department Should Reconsider its Approach to Employment Security Automation	The Congress	HRD-78-169 December 28, 1978

<u>Title</u>	<u>Recipient</u>	<u>Report Number and Date</u>
Letter Report on Review of The Automatic Data Processing Equipment (ADPE) Interim Upgrade Acquisition Process	Administrator of General Services	FGMSD-79-10 December 28, 1978
Letter Report on Reviewing the Bureau of the Census' Management and Use of Automatic Data Processing (ADP) Resources	House Committee on Government Operations	FGMSD-79-5 December 13, 1978
Managing Weapon System Software: Progress and Problems	The Congress	PSAD-78-112 July 10, 1978
The Federal Information Processing Standards Program: Many Potential Benefits, Little Progress, and Many Problems	The Congress	FGMSD-78-23 April 19, 1978
Farmers Home Administration Needs to Better Plan, Direct, Develop, and Control Its Computer Based Unified Management Information System	Chairman, House Appropriations Subcommittee on Agriculture, Rural Development and Related Agencies	CED-78-68 February 27, 1978
Accounting for Automatic Data Processing Costs Needs Improvement	The Congress	FGMSD-78-14 February 7, 1978
Computer Auditing in the Executive Departments: Not Enough is Being Done	The Congress	FGMSD-77-82 September 28, 1977
Millions in Savings Possible in Converting Programs from One Computer to Another	The Congress	FGMSD-77-34 September 15, 1977

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Problems Found with Government Acquisition and Use of Computers From November 1965 to December 1976	The Congress	FGMSD-77-14 March 15, 1977
Managers Need to Provide Better Protection for Federal Automatic Data Processing Facilities	The Congress	FGMSD-76-40 May 10, 1976
Improvements Needed in Managing Automated Decisionmaking by Computers Throughout the Federal Government	The Congress	FGMSD-76-5 April 11 23, 1976
Opportunity for Savings of Large Sums in Acquiring Computer Systems Under Federal Grant Programs	The Congress	FGMSD-75-34 July 24, 1975
Program to Improve Federal Records Management Practices Should be Funded by Direct Appropriations	The Congress	LCD-80-27 December 5, 1979
Letter Report on Study of Presidential Libraries	House Subcommittee on Government Information and Individual Rights Committee on Government Operations	LCD-80-27 December 5, 1979
Improvements are Needed in the Management of the National Archives Preservation and Trust Fund Activities	Administrator of General Services	LCD-80-13 October 26, 1979
Valuable Government-Owned Motion Picture Films are Rapidly Deteriorating	The Congress	LCD-78-113 June 19, 1978

<u>Title</u>	<u>Recipient</u>	<u>Report Number and Date</u>
Challenges of Protecting Personal Information in an Expanding Federal Computer Network Environment	The Congress	LCD-76-102 April 28, 1978
Ways to Improve Records Management Practices in the Federal Government	The Congress	B-145743 August 13, 1973
An Informed Public Assures that Federal Agencies will Better Comply with Freedom of Information/Privacy Laws	Senate Committee on the Judiciary	LCD-8-8 October 24, 1979
Privacy Act of 1974 Has Little Impact on Federal Contractors	House Subcommittee on Government Information and Individual Rights Committee on Government Operations	LCD-78-124 November 27, 1978
Impact of the Freedom of Information and Privacy Acts on Law Enforcement Agencies	Senate Committee on the Judiciary	GGD-78-108 November 15, 1978
Government Field Offices Should Better Implement the Freedom of Information Act	House Subcommittee on Government Information and Individual Rights Committee on Government Operations	LCD-78-120 July 25, 1978
Data on Privacy Act and Freedom of Information Act Provided by Federal Law Enforcement Agencies	Senate Committee on the Judiciary	LCD-78-119 June 16, 1978
Agencies' Implementation of and Compliance with the Privacy Act Can Be Improved	Office of Management and Budget	LCD-78-115 June 6, 1978

<u>Title</u>	<u>Recipient</u>	<u>Report Number and Date</u>
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FBI Taking Actions to Comply Fully with the Privacy Act	House Subcommittee on Government Information and Individual Rights Committee on Government Operations	GGD-77-93 December 26, 1977
Reduced Communications Costs Through Centralized Management of Multiplex Systems	The Congress	LCD-80-53 May 14, 1980
Economic and Operational Benefits in Local Telephone Service Can Be Achieved Through Government-Wide Coordination	The Congress	LCD-80-9 November 14, 1979
Navigation--A New Direction is Needed	The Congress	LCD-77-109 March 3, 1978
Secure Voice Telephone Systems--How Department of Defense Can Save Millions	The Congress	LCD-77-105 December 30, 1977
Need to Control Federal Warning System Proliferation	The Congress	B-133202 April 9, 1976
Economies Available Through Consolidation or Collection of Government Land Based High Frequency Communications Facilities	The Congress	B-169857 February 6, 1976



## THE INFORMATION MANAGER WHO HE IS AND WHAT HE DOES

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I am charged this morning with talking about the role of the information manager, and I think that is a very fair topic. I am challenged all the time to define just what in the world information management is all about. People justifiably say to me ..."Gee, this sounds like, 'here we go, all over again'". We had management by objective and management information systems and environmental impact statements, and now here we come along with something called information resources management, and paperwork impact statements and information collection budgets, mind you. Isn't that the height of management theory arrogance, when we are already suffering under the burden of trying to comply with all these high minded improvements in our way of doing business, in government particularly? So I think it is a fair question, and I think it's a challenge to try to accurately define just what information management is all about. I think it is more than the things that we are reading about, in terms of better coordinating our information resources and better planning information resources. The definition I would like to try on you this morning is one that I most often run across, not in government circles, but in private industry circles.

I was just attending a meeting in San Francisco late last week of corporation executives. They were talking about their information problems. One of them spotlighted a key distinction between the

traditional way of looking at information, as a routine kind of a service activity, and the whole idea behind information management, which is to really look upon information as a valued organizational resource.

With some temerity or timidity, I will give you the example that one president of a corporation gave me when he talked about his librarian, which is obviously very appropriate to your meeting this morning. You have heard this before, but you may not have heard it quite in these words, but the way it comes out is something like this: "When I have an information problem and I go to my librarian, I am usually given six monographs, three journals, two newsletters and perhaps the results of an on-line search. When I come into my office, I find a pile of materials, but I still haven't solved my problem." I think that underscores the essence of the difference between information management, the way the Paperwork Commission tried to define it, and what I and others who commented on it feel it should be.

We are really talking about a shift or redefinition in roles, from being concerned with what the librarian calls in his or her technical jargon "secondary information sources" to making yourself a part of the management team and not being content until the problem is solved or the decision is made. Now it is so easy to say that, and, of course, I think intuitively you might agree with it and say, "Well that does seem to make sense". But the problem is that the people in the different information disciplines--the librarians, the data processors, the statisticians and the records officials--have not been trained to behave this way and adopt that kind of an attitude in their jobs. And I think some of you would probably argue that, if you tried to do that, you would get hit over the head or be told "It is none of your business...You know, I am the only one who knows what my information needs are, and why don't you just go away, and I will take care of them."

The problem is with all of these machines, all these on-line data bases commercially available, or those being developed in-house, and the telecommunications networks which are making all of this information so rapidly available, we are now in a situation where I would suggest every man or woman cannot be his own information expert any longer. Even the information entrepreneur, if you will, the information expert, who was always the kind of person in school who went into the library and was comfortable in libraries, is now lost. We are coming to a point, if not already there, where just knowing where relevant information is, how to access it, and get it delivered, is such an enormous and complex problem to the busy executive or the busy government official that we need to put in place a new role alongside the existing ones. That role is coming to be called the information manager.

Going back to my story about the corporation executive, he went further with his story and said: "When I decided to fish or cut bait, I walked in to my librarian and sat down and said, 'Look, I have a different idea of what your job ought to be, and you may not agree with me. I want to give you the choice of opting out and letting someone else play the role that I am talking about or giving it a try with me, and let's see what happens.'" Within a week, he invited this librarian to attend a top corporate meeting, where they were planning new products. This is the first time this had ever happened, where the librarian came into the room and felt like she was a member of the top management team. Now the corporation president was careful to point out, when she (the librarian) walked into the room, that this was an attempt to identify a new role which ought to be played in that corporation and that he hoped the vice president in charge of marketing and the one in charge of manufacturing were going to give this a fair chance, because he didn't know what all the answers were, and certainly she would need a chance to define her role and see if this would work. They began then to talk about new products and what this company wanted to do. All this while, the librarian was making notes and trying to translate what was being said into concrete information requirements associated with those new products. Was a market survey needed? Did they need to subscribe to some new journals? Were there some new newsletters involved? What was the likelihood of certain monographs being available? Did they indeed need an on-line data base? All those kinds of questions she began to mentally tick off, as these executives discussed their product planning. So when they left the room, she was able to go back, sit down, and translate what was said into an information plan associated with new product development for that company.

Of course, there is something else to this concept. It takes a certain amount of assertiveness (which is a word that has already been used), a certain amount of aggressiveness to get yourself into that room in the first place, even with the president's blessing, because you are playing in the big leagues then. There's a risk in doing that, because you may not be able to produce satisfactorily. You may not be able to live up to the expectation that you are going to come up with the right information resources which are needed. But, fortunately, this librarian was of the mind set and of the coloration that was willing to give this a try and, by golly, in this case, it did work! Like all stories with fairy tale endings her salary was doubled in six months, her title was changed, and she was given, I have forgotten the figures, something like 30-40 percent more in her budget. Obviously, the story doesn't always end that way, but I think it does tell eloquently that we must modify the role and give people a chance, not just to acquire the necessary technical knowledge, but to acquire the skills to be a member of the top management team.

Now let me say something else in that regard. I have used the word role, because I don't mean to suggest for one moment that information management or the information manager is going to somehow replace the traditional role of the librarian in a traditional

information service sense. We are still going to need librarians. We are still going to need records officers. We are still going to need statisticians. People must play those technical service roles. All we are doing is putting in place, alongside those existing information-related disciplines and professionals, a new role for a person who will be a resource manager in the truest sense of the word, at the top level, as well as subordinate levels, of the organization.

We really have two things here, as always when we are dealing with people. We have the job, and we have the person. Even with the best trained person, with all the right skills and the right knowledge base, the corporation environment might not be willing to give the librarian a chance. If the job itself is not seen in the organization at a certain peer level but is the victim of stereotyped preconceptions of what that person's role ought to be, as judged by conventional and historical standards, then the person, the incumbent, as we say in government, is going to be looked upon as an interloper. People at best will not cooperate and at worst, of course, won't get paid for the job. Therein lies the other rub. We are in, it seems, a situation now, with information management beginning to catch hold, where not only do we not have a good body of doctrine (if I can use that phrase for the kinds of skills, attitude, and behavior norms required for the information manager), but we don't even have the jobs carefully defined. You still won't be able to go to Bethlehem Steel or U.S. Steel or Exxon and find an information manager or a vice president for information management. You still won't be able to go to a government agency and find a senior person at the assistant secretary level who has that title, because the jobs are still not on the charts. I think we will probably be in this transition period for anywhere from three to five years.

The new legislation that Ken Hunter spoke of, the Paperwork Reduction Act of 1980, if it passes in the lame-duck session or next year, will go a long way to helping that situation. That law will call explicitly for the creation of a senior focal official, in each agency, to perform this role as an information manager. So, to summarize on this key definitional point, information management is a basic attitude and a behavioral kind of thing on how someone in the organization is going to carve out a role, which the other resource areas have had now for several decades. By other resource areas, I mean personnel, finance, inventory and equipment, etc.

To pursue the analogy one more step, just to make it a little clearer, when the chief corporate team is again discussing personnel problems, key promotions, training, hiring and firing, they bring the personnel officer into the room. The personnel officer is expected to play a devil's advocate role, in part, in challenging needs for new and different kinds of people at different salary levels and help the corporate team decide exactly whether incumbent X is going to be probably a better candidate than incumbent Y. He or she is, in fact, a

member of the corporate team. The same is true with financial matters. When the corporation is discussing the capital budget, new investments, new plant acquisitions, or new investment strategies, the comptroller is brought into the room and plays the role of the corporate team member who is expected to know all about financial matters.

In the information area, we are talking not of just a routine service, secondary information sources if you will, but we are talking about a managerial role that will be played by one or more people at different levels of the organization, that really help that team get the information it needs.

In the end, there are only two things the information is used for: to solve problems and to make decisions. Of course, librarians also acquire books for entertainment and recreation purposes, but I am talking about the organizational environment, be it in the corporate environment or government agency, where information is really the life blood and is used to solve problems or make decisions. So it is a role-definition problem. The following speaker, I assume, will talk about the career implications of this, in terms of occupational standards. Although I would like to say something about that subject, I will refrain, unless, of course, the succeeding speaker neglects to cover the areas.

Let me move to the second thing I was asked to talk about, and that is the federal information locator system. I did direct the government-wide task force which recommended to the Director of OMB that there be designed and put in place what you would call simply a card catalog that would keep track of the five or ten thousand (depending on which way you count) recurring reports which the federal government collects from the general public. Here I am talking about the whole array of information, from general purpose statistical surveys to applications for benefits from private citizens, to licenses or permits granted to businesses, evaluations of the effectiveness of government programs by an agency like HUD or HHS, etc. Historically, there have been from five to ten thousand of these. By executive order, President Carter directed the establishment of such a locator system last November.

I am pleased to say that for the last five to six weeks there has been a contract ready in Washington, to begin the work of designing and developing an on-line terminal locator system. All of the details have not been ironed out, but the central idea is clear. If one agency wants to collect certain information from the public, it can search the central locator file to find out if another agency is already collecting the same or similar information and thereby preclude the recollection of duplicative and overlapping information. I suspect that the system will take several years to carefully design and develop.

You, as information experts, know we are not just talking about an inventory control system of spare parts. We have got to be very careful that the profile, as it was called in the locator system, of all these holdings is very carefully designed, that it can be searched, and people can actually get the information they need. One of the subcontractors involved has a long and distinguished reputation in the information science area and has specialized in cataloging, indexing, and abstracting problems. I am very pleased that that is the way this worked out, because there had been some fear that the contract would be given to a computer software firm that knew absolutely nothing about professional classification problems. Fortunately, that is not the case.

The task force which I chaired recommended that the system be designed and opened up only to executive agencies, for the first two years, until it could be completely debugged and everybody was satisfied with the quality and validity of the data. This may avoid embarrassment to the federal government if it should be prematurely opened up to the Congress or to the general public. The director of OMB concurred in that recommendation; however, if the Paperwork Reduction Act that we have been talking about passes, it may be that OMB will be overruled by the Congress, which is obviously very thirsty to get more information. This holds true for the general public as well, because as you may have been reading, one of the problems with the Freedom of Information Act is that people still don't know exactly what's available or how to access it. That again is a two-edged sword. There are some agencies that are not too happy in making publicly known all of their information holdings, so there is some sensitivity on that side of the equation as well. But I think FILS (the Federal Information Locator System) will move forward, and within a couple of years in federal information centers and federal libraries, we will have a terminal that will allow you to access this data base.

The last thing that I wanted to cover was the legislation which Ken Hunter spoke about and give you a few more words of background for those of you who haven't tracked this. In a sense, this is an embodiment of all of the major government-wide policy recommendations on how to reduce the paperwork burden on the American public that were made by the Commission on Federal Paperwork. HR-6410, the House version of this legislation, did pass by an overwhelming vote, 320 to 13 (I think) much earlier this year. But then a funny thing happened on the way to the Senate. Some other people got into the act, notably your own Defense Department and the intelligence community, who feared that the way it was worded in some parts would create an unnecessary delay in acquisition and procurement, particularly, and later congressional control over sensitive computer and telecommunications equipment being used for national security and sensitive intelligence operations. That stalled the bill for a while, and then, so I understand, although I was not in Washington, we got so close to the election that all except the highest priority bills got put on the back burner. When

the Congress decided on a lame duck session, this bill got caught. The Senate number is 1411.

Let me just briefly tell you what was in that bill. First, its purpose was to strengthen the coordination and the uniformity in federal information policies and practices; secondly, information needed by agencies was to be obtained and used with a minimum burden and minimum cost on the American public. I realize librarians and the Defense Department more generally do not levy a highly significant burden on the American public, so to a certain extent your interest is not primarily in that area. Thirdly, agency-collected information was to be maintained to maximize its usefulness to Congress, other agencies and the public. That is where the locator system comes in. Fourth, there must be consistency with the Privacy Act of 1974. As you all know, we have had the Privacy Act and the Freedom of Information Act as sort of two ends of the pole pulling at one another. Hopefully, this bill would help to balance those opposing forces. And lastly, ADP and telecommunications and other information technologies would be used to improve service delivery program management, to increase productivity, to reduce waste and fraud, and to reduce the information processing burden within an agency. And that, I think, does squarely go to the Defense Department. Certainly this is true where external burden on the public is not involved but where we are trying to increase productivity within an agency.

The bill would establish an Office of Federal Information Policy headed by an associate director reporting directly to The Director of OMB. There already is such an office in OMB that was created partly in anticipation of this law, and, if the law passes, the staffing resources and the authorities of that office will be greatly increased. The Director of OMB, then, under this law, would be given overall direction in development and implementation of federal information policies, principles, standards, and guidelines with approval of information collection requests from the public. Reduction of the paperwork burden on federal statistical activities is also included.

There are also responsibilities prescribed for agencies; the head of each agency would be required to designate, within three months of the enactment of the bill, the appointment of a senior official who would report directly to the agency head. Then each agency would be required, (and here is the substance of the agency responsibility), to inventory major information resources within the agency. By resources, I think we are talking about all the sources of information, all the information services such as the library and all of the major information systems that the agency uses. And that inventory, like all inventories, would then be kept current.

The idea behind it is, after you got the inventory, you then might prepare a simple input/output kind of a matrix array on all these information resources. Across the top you might put all the

different departments, divisions, bureaus, etc., within the agency. A pattern would emerge in which you could see where there were gaps or where certain departments were either not using information resources that were available or were not using them well. On the other hand, you could identify patterns of overlap and duplication where some consolidation of information resources might be possible. When I use the term information resources, as Ken Hunter defined it, I mean to talk in a very comprehensive way about the computer centers, printing plants, micrographic operations, copying machines, statistical offices, and the library information centers. These all have one thing in common: they collect, handle, store, process, and disseminate information.

Each of these senior information management officials would have a small staff to help him carry out the rest of the responsibilities in the Act. A number of agencies have already moved in this direction and haven't waited for this law to pass. I am sure some of you, at least, have heard that Headquarters, Department of the Army, commissioned a study with Arthur Young which recommended that an IRM staff be installed at the Headquarters level. This has taken place, and there is a Pentagon staff of seven to eight people which has just started within the last couple of months to begin to plan what information management will mean to the Department of the Army.

Similar activity has gone on in the Department of Interior and in some of the other agencies. I again repeat something that Ken said. Although it's really too early, in my view, to try to spell out a precise information management structure or set of policies and procedures, I think we will go through a period of experimentation where different agencies will try to tailor that concept to their own particular needs. I think that's a very good idea.

I, for one, would hate to see some prescriptive formula on how information management should be approached; a shoehorn in each individual agency is just the wrong way to go about it. If you were to look at what is being done in HQDA and in Interior and the Federal Communications Commission, you would see differences. In one case maybe they are, for the moment, dealing in the world of automation, trying to coordinate more closely ADP with telecommunications. In other cases, they may be still working in the manual hard copy area just trying to do the same thing, but with the records function, with the forms function, and with the traditional paperwork function. There are all kinds of permutations and combinations of this. As far as I can see, perhaps a dozen agencies are in varying stages of trying to develop and put in place some kind of an information management organization.

I will allow some time for questions as I would like to adjourn.

(QUESTION)

The question was: How can we, as librarians, sell our respective bosses and organizations on the concept and benefits of information management. That is a very good question. There is no single formula I can give you. I just would have to go through a litany of different things that I would do.

I would try to put in some key articles (not particularly the ones I have written, but there are a lot more good articles than books at this point) that outline the concept and how it is being applied. Secondly, I would invite a couple of these other agencies to make a presentation on what they are doing. I found in the last year that a man Craig Cook, who was the project leader for the Army study, is more than pleased if he can put it in his schedule to speak to different groups on what has happened in the Army experience at the Headquarters level. Thirdly, attend conferences and meetings of this kind, where the subject of information management is being squarely addressed. Try to get them to attend some of these seminars and meetings so they can hear firsthand what's happening. Certainly you should track the legislation. Get a copy of Senate bill number 1411, so that they can read that and understand it. And perhaps send them off for a day or two to one of the universities or other training institutions that are beginning to develop courses in the area of information management directly applicable to civil servants.

I would sit down and do a variety of those things and try to expose them and then see how far you can get with that corporate scenario I spoke of. Maybe you can't go all the way. Some of you will not find the four-star general who is going to invite you in with the general staff tomorrow morning. But short of that you might realistically get into some of the meetings. It is really going to be up to you how you play that game. There's no question that information is not the same kind of commodity as tanks and planes. It is very sensitive, and there are many corporate boardrooms that are not going to want to share that knowledge. So you may have to settle for the first part of the meeting, where you can discuss information requirements, and then you can politely take your leave when they want to discuss other more sensitive things. It is another strategy.

I am going to send you a four page list of places to go, and persons to talk to, to find out more about the information management concept. If your name is not on the registration list that was handed out in your folder, I would appreciate your giving me your card, or get the information to your program committee, so that I can make sure you get on the mailing list. I will have to do that by mail, because I have made some changes to it.

Thank you.



POSITION STANDARDS FOR  
INFORMATION PROFESSIONALS

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I have been touched by the people who have preceded me, Dr. Horton and Mr. Hunter, because I have gathered more information in the short time I have been here than I intend to give. I apologize for not sticking around for the rest of the conference--the GAO is auditing my branch on our performance in pushing the performance appraisals program, so I really appreciate the GAO presentation. I would also like to stipulate at the start that, unlike the gentlemen who have been at the center of power, I am a field hand. I have worked in the region all my life.

When I called Washington to say, "Hey, what about the librarian standards?" they clammed up. I will tell you why in just a minute. I intend to talk about the problem which appears to be long-standing, about defining the information resources manager as an occupation. I intend to propose a method of getting the OPM out of your way.

Let me begin by explaining what my branch does, and that will help you begin to get OPM out of your way. Seven months ago, before I became acting manager, I was a personnel management advisor, which is the OPM's euphemism for an evaluator. That is a cross between a guard-house lawyer who evaluates your compliance with Title Five of the U.S. Code and an organizational anthropologist who tries to tell you how to use the people, so that they produce better and are happy.

I didn't do it very well, but I enjoyed it. This I do a trifle better and hate it.

The Classification and Compensation Branch in the Western Region is a rational attempt, just as the information manager is a rational attempt, to group several functions together which the old Civil Service Commission had. It's a rational aggregation of functions, classification appeals, pay matters, performance appraisal and employee benefits, all of which affect your pocketbook as an employee.

The branch I temporarily direct processes classification appeals; it also applies draft standards which come out. We solicit you for position descriptions, and then we test to see if the standards assign people to correct levels. We also do technical assistance and consulting on proposals for agencies about new standards. I will get back to that in just a minute.

In pay matters we adjudicate Fair Labor Standards Act (FLSA) complaints and tell the agency to pay up. We also (and this may be a useful item of information for you) evaluate special salary rate requests. If you have difficulty recruiting people in a specialty, and, if that difficulty is due to competition from the private sector, we can evaluate your loss and the amount of competition from the private sector and propose to the central office special salary rates for that particular occupation in a particular location. I am not aware of any such problem with librarians or the other occupations which are aggregated under information specialist; it is, nonetheless, something to remember. We advise on the interpretation of pay regulations.

We advise on benefits on retirement and on health benefits. I suggest you call our desk officer if you have problems in any of these areas, or propositions or reactions to what I tell you.

Now let's get back to the title of the speech. The title of the speech was "Position Standards for Information Professionals". I will stay close. I have no specific information on the status of draft standards for librarians, library technicians, and technical services. Neither, in the time that I have sat at the desk and looked at classification appeals, have I had any interesting appeals which involve the occupations that we are talking about. I do intend to talk about, for your insight and health, how and why a class of standards is developed, potential changes in the classification system and in regulations because of the Civil Service Reform Act, and how OPM can help you find your occupation and get it recognized. I might, if I have a minute, offer some personal insights about information management, not as a classifier but as a sometime manager.

First, why there is no status on draft standards. I called them. I really squeezed them. I talked sweet. I gave them all kinds of classifier's talk, and I must infer that they are at that stage of the

study in which they have gathered all the facts on the three occupations and also on archivists, and they are evaluating them for conclusions, and that even though the aggregation of facts points at its conclusions, the next datum they pick up may contradict it. So they are not saying anything about any of those standards. I can, however, tell you where various things are which affect your considerations here today.

They did tell me where they are in their process. For example, we are undertaking the study of Computer Operations (GS-332). A draft revision has been started. A Computer Clerk and Assistant (GS-335) was published. A Digital Computer Systems Administration series (GS-330) will be proposed for abolishment and incorporated into Computer Specialist (GS-334) and a revision is to be published soon, they say; the draft stage is complete. The draft is nearing completion for Statistician and Statistical Assistant (GS-1530 and GS-1531). For Management Analyst (GS-343), which is a key occupation, it appears that a new study is to begin soon in information management. I have said the drafts are being written up on the Librarian (GS-1410), Library Technician (GS-1411), and Technical Assistant (GS-1412), and we are also simultaneously working on Archivist and Archivist Technicians (GS-1420 and GS-1421) because GSA gave us some money to help out. I will get back to that in just a minute. For Public Information Officer (GS-1081), which is at the other end of information management, a draft is now up for comments, and it is to become, we expect, (GS-1035) Public Affairs; it will be changed totally. That is what they told me when I asked them about the status of librarian standards. That is plenty, but it "ain't" nothing to do with librarians! I do understand, and I will most probably have to contradict myself.

What I would like to talk about is what OPM is up against and why it seems so resistant when a proposal is made for a new occupation or a new cluster of occupations. It may help you understand and to figure out how to get around it. I have to begin with a metaphor: the standards writers in the OPM are the naturalists of the federal occupational habitat. How about that? They are not genetic engineers; they are naturalists. That means they are linarians who will try to impose a status order of classes on the fluctuating populations of positions. Do you understand their situation? Kingdom, phylum, order, change of species? They are real Darwinians. This is the Standards Development Center, not other parts of the OPM. Please distinguish the different parts. They will not acknowledge the existence of an occupation until they know a viable population has proved itself. If it gets killed off, they are not going to acknowledge it. Otherwise, they would be producing a variety of fine creatures, the categories of occupations, which do not exist. I am giving you their basic attitude, perhaps a bit more poetically than they might have.

This cause of variability in the federal work force, in the federal occupational structure, is due to a basic right of management; the line manager has the authority to organize duties into a position

as seems best to him or her to accomplish the mission. Duties may be collected any-which-way into a position, theoretically. Some positions are sports; they just don't work, and how that position gets classified is the classifier's problem. It is not the manager's problem at all.

Now the reason people are intent that there be an occupational definition and that there be some qualification standard is that, once the system establishes a series for information management, then the manager will have some indications on how to examine for it, the levels for which it's paid, and how the incumbent is to be developed. These are both managers' and personnelists' problems so I understand why we would want a definition of this particular occupation. But the OPM interpretation of the law and Title Five is, I repeat, that the class series reflects occupations; they do not create them. There is going to be an inevitable lag between the creation of the occupation and the creation of a class. This is a lag which the standards writers are constantly trying to shorten, but I would like to give you some insight as to why the lag persists.

There are approximately thirty-five occupational specialists in standards development in the OPM Washington Central Office. It takes them, as individuals, six to twelve months, to do an occupational study and there are 1.2 million white-collar positions and half a million blue-collar positions in the federal government. Their difficulty is the process which they have to go through in order to define and classify and see the qualifications for an occupation.

Let me stop right here and define what an occupation is: An occupation is all positions which are sufficiently similar as to kind of work that is processed or subject matter of work and the nature of qualifications requirements to allow career progression from one level to another. What that means is that these occupational specialists are looking for common work processes or common subject matters of work. They are particularly looking for a fairly consistent constellation of qualifications requirements to do this kind of work. Also they cannot define an occupation at one level only. It has to have a career progression from one level to another, so the definition of an occupation may be a broad range of positions performing different functions but requiring a common core of knowledge and skills and ability, or it may be a relatively homogeneous function performed only within one agency. An example of the heterogeneous kind is Management Analysts that are found in all federal agencies; their duties vary radically as to subject matter. The other kind is, and I hesitate to mention it, Civil Service Retirement Claims Examiners, who are singular to one agency and who have their own classification standards.

Standards writers regard classification and qualifications as integral; the issues cannot be separated. They are looking for the basic skills and attributes absolutely necessary to do the job--the

potential abilities a worker must have. They must also know what other knowledge and abilities the worker will need to acquire as she or he progresses to the journeyman performance level. They have a particular bias which I share and which the old Civil Service Commission and OPM still corporately share, and that is, they are trying by every means to avoid restricting avenues of entry into an occupation. We have an institutional bias against certification and licensing, so that quite frequently and in almost all standards we will accept equivalent experience and training for a certificate or a license. This is to fulfill our charter to make sure that federal jobs are available to people who are capable of taking them in the widest possible numbers.

The second thing they have to do once they have determined the "qualifications" is to determine the natural breaks in the levels of skill exercised. They have to match these levels with the levels they find in Five U.S Code 5104, against which all classification standards happen to be matched. Then they have to figure out which tests would be necessary, in consultation with personnel psychologists. So in a word, what they've got to do in the six- to twelve-month occupation study is get hold of the federal agency users, other OPM officers, unions, professional societies, industry and academic institutions. They have to notify all the interested parties of their purpose and intent and write a prospectus. Then they have to visit representative installations, OPM installations, employee groups and unions, industry and outside occupational experts. After this they have to analyze and refine the data. That is where they are on librarians now.

As I understand it, they can develop the content of a classification standard, then they transmit the draft to agencies and OPM for comment. This is the point at which you get in your oar about how wise the definition was and how well it matches, and this is the point at which we make official matches to see if people are going to be harmed or benefitted thereby. They evaluate comments that come back, write and clear the final standard, and publish it. After that, they keep the file on hand for use. I have to tell information specialists this and then retain the file for future revision and work on other standards.

So they have quite a bit to do and they have quite a bit to look into. They need a good deal of prior direction, in order to get started. When you get back to your office, I would like to call your attention to two documents the Standards Development Center published. One was FPM Bulletin 271342, published on 30 Oct 1979, and the other was its twin, its clone, FPM Bulletin 27137, published on 9 Apr 1980. The purpose of the initial bulletin was to ask federal agencies about resource sharing to increase position classification and standards production. The second one was, of course, responses to the first bulletin.

What the OPM said at that point and what we are doing is economizing on our scarce Standards Development Center resources by trying to see to it that single agency standards are produced through agency resources, and, secondly, that multi-agency standards use shared resources to the maximum extent. That is a nice bureaucratic way of saying, "Your agency's going to pay for it". The third is a greater emphasis on position classification guides covering more than one GS series, which is an alternative I suggest to you when you are talking about information management.

We also offered five choices to sharing resources. The first said to send somebody in to us on a one-year fellowship. You pay for them, of course, and we will develop them as standards writers. Second, you do all the standards under our supervision; you're paying for your time. Thirdly, you conduct parts of occupational studies, or, fourthly, you purchase a standards production from us, and we will evaluate your work, and then we will do it. And, fifthly, we can publish supplements based on our classification appeal decisions.

Twenty three agencies responded. Sixteen of them wanted more production; I don't know what the others wanted. Eight suggested agency resource projects, of which seven were accepted. We are participating with these seven agencies right now in the drafting of standards which are peculiar to them. Most agencies, as you might suppose, were supportive of our publishing supplements based on classification appeals and advisory decisions, because it doesn't cost them anything.

The Standards Development Center still remains receptive to resource sharing, and we will consider offers in setting priorities for the next fiscal year. Again, translated out of bureaucratese: If you are willing to pay for a standards development project, it will get in line ahead of one that we have to pay for. We can maximize our resources that way: "If you got the money, honey, we got the time". We don't even have the time! We've got the approval; we also need some time frames and some skills.

Let me reiterate. Federal agencies create classification series by consistently assigning specific duties to positions and then by requesting a study. And the OPM is talking about taking yet another tack to try to help make the classification system work better. On 27 Oct in Los Angeles and 29 October in San Francisco, a central office team will interview managers and classifiers about radical changes to the classification system, pursuant to CSRA.

I hate to say this with a GAO man sitting here, but it appears to me that the state of intent of the CSRA is deregulation and decentralization in the personnel functions of the federal government. So, what the OPM is aiming for (and I have said it often in public and haven't been contradicted) is a federal personnel pamphlet, instead of a federal personnel manual and documentation by telephone slip. That is the ideal we are working for, but we still get all these classification

standards taking up a whole bookshelf. So what we want now is comments from federal managers and classifiers about how to make the classification system both work better and be cheaper.

Some ideas have already been proposed to Mr. Sugarman at a higher management conference, and some of those ideas are being seriously considered. One is that managers have the authority to classify positions; they also had better be accountable for their budget. The classification specialist would be advisory only. The second suggestion which has been proposed is that agencies simply develop their own classification standards to meet their own occupational and organizational needs. That means that these liaisons I was talking about who tried to reconcile them all will suddenly say, "Let a hundred flowers bloom and a thousand schools of thought contend." They will not try to contradict your definitions of an occupation; the OPM would only review for adherence to the definition of the levels in Title Five and also fit the primary FES standard. The third suggestion, which is being taken seriously, is that agencies classify nebulous jobs by direct reference to the primary Factor Evaluation System. All of these things are initiatives which would give the agencies more discretion in defining an occupation, greater speed in classifying it, and more control over the assignment of duties and paying of employees. I suggest, if you haven't been invited to this conference, that Mr. J. Sugarman himself is overseeing this particular study, and any correspondence directed to him about desirable changes in the classification system will be welcomed.

Let me conclude: Here's what you can do now for the information management occupation. First, if you see that the jobs are potential, that they are needed but that they are not yet in existence, you have been consulting with the wrong part of OPM, and the Standards Development Center has nothing to do with that kind of thing. The people to talk to in OPM are the Agencies Relationships Group and the Work Force Effectiveness and Development Group, whose particular duty it is to watch over, to help institute, and to consult on productivity projects.

The greatest yield of an information resource manager I can see is the gain in productivity in a federal agency. If these positions were created as part of the productivity projects, and if they were indeed more productive, they would survive. In this region I suggest, if you have some such project, that you get hold of Rufus Unruh at our agency liaison division.

There has been one interesting innovation in information management, and that is that the Science and Education Administration of the USDA has shortened the time it takes to classify clerical positions under the FES by giving managers a checklist of duties which fit the position the manager wishes to create, or which describes the position which the manager has not had. They are fed into a computer and are

graded. We are watching this with great interest--some suspicion but great interest--and we would like to see it work.

Secondly, we must be approached either through agency auspices, that is, the director or the commander of a particular installation has to take an interest in it, or through a professional association. If these people are interested in having us consult with them and help them define an occupation which is already in existence, any one of that constellation that makes up information resources manager, again, call Rufus. My lead classifier has recently been consulting with DoD and NASA activities, defining a new occupation called software engineering. She has helped them through the Professional Council of Scientists and Engineers here in California; she has helped them prepare a package which the Standards Development Center can evaluate, which not only traces the job, but shows that federal agencies using these software engineers have fairly consistent patterns of qualifications and career progression. There are educational institutions which have curricula in software engineering and private industry has definitions of the occupation, and training programs. She has helped them develop a fairly complete package. She herself still has some doubts as to whether there is a software systems engineer, but she thinks it is a good package. We are interested in seeing what they are going to do with it.

I might conclude with just one comment. This caveat is not from a "classifier", but from somebody who has to have information sometimes, who needs it when he needs it. I take very egotistical views towards information: there is information and there is noise. Whenever I apply my understanding to some noise, I can make it into information; every other program specialist and every other manager must do the same thing. It is noise until it is comprehended and put in a format. The data that we talk about so glibly on the board is noise unless it is contained in a meaningful pattern, which makes it information. What I mean to say from all these abstractions is: I welcome the economies and the rationality of some method of managing, gathering, collecting, and describing of information. However, if it ever goes wrong on me, as it has in the past, I keep my own files, as do my technicians. When they don't produce the data I want, I compute it myself; and when the word processing center doesn't get the work out, I misuse a technician and get it out. So you are going to see things go wrong in the federal service during the teething phase of this new occupation.

(Question from the floor concerning recruitment): Answer: Why do you lack access to the city colleges? Have you had your agency make their San Francisco office aware of your problem?

There are lots of things that can be done. For one thing, if a register doesn't exist, we can give you direct-hire authority. We can have you examine for them, something which we would love to do. If a register exists and we can't get people on it and it is in competition with a private sector, then you all come to see us.

I have run into that problem myself. I need some clerical help, and my needs are very modest, and I have found that I had to do recruiting myself, which I did, and got them on the register. If you need any information about the status of registers, call our San Francisco area office. If they don't give you any satisfaction, because you had the good fortune to be in the same room at this time, call me, and I will get you satisfaction, or at least get an answer.

Thank you.

(Question on how to hurry the designation of an occupational series): Indirectly, there are two ways. If you are in Washington and you contend that the occupations already exist, call the agency officer in the Agency Relations Group. If you don't think it is here yet but you want to bring it along by the means of product projects which construct this occupation, then I would seek WED (Work Force Effectiveness and Development Group).

(Question: How are the standards compiled, developed for the series, and then what is the review process?): I use too many words, I infer. They gather occupational data from the federal users of those occupations, any private-sector users of those occupations (if they exist), employee groups, unions, and professional associations. That is one set of data. Then the people who actually watch this in process also go to educational institutions, to textbooks, to manuals, training manuals, and to private industry training, to see how this particular occupation is developed.

When they have developed these data, they do it mostly by interview of individuals who are working in the occupations, then they take them back, and they test a hypothesis about the limits of the series and where the grades are going to fall. They draft a standard which is published for comment to OPM and to various agencies who are users. We compare those occupations which would be included under this new standard. We compare them to the standard, evaluate them by the standard, and come up with a grade. And if the occupational definition fits and the qualification requirements fit, we must always comment on qualifications for the position. I know the branch does, and, if the grading comes out right (that is, the standard doesn't displace the old occupational structure), then generally it is approved.

The agency comments about inclusions and exclusions and particular bench marks and particular evaluation factors, and they are accepted at that point, and agencies and the particular installations are notified through their chain of command. Is that twenty five words? Did that do it better for you? I am sorry I fuzzed it before.

Thank you very much.



THE DEFENSE TECHNICAL  
INFORMATION CENTER

Hubert Sauter  
Administrator  
Defense Technical Information  
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Alexandria, VA

Thank you, George Gamota, wherever you are. First of all, I think I need to set the record straight. I would like to think that I set policy, but in reality I think the best I can hope for is that I can influence some of the DoD policy, so far as most of you are concerned. The overall DoD policy does come from Dr. Gamota and Dr. Bement. So this afternoon it is a real pleasure for me to be here and participate with you in this, the 24th Military Librarians Workshop. It must have gotten started before I was two years old! Certainly we in the Defense Technical Information Center (and that has been our name now for the better part of a year) are really pleased to be participating with you. We recognize the importance of the library community, particularly the military librarians. We also realize that, without your active support and without your active participation, we would not be able to carry out our mission in a very effective manner. We therefore committed ourselves to work very closely with you and to develop programs that we feel are of mutual advantage and benefit to both groups. We are all part of the DoD technical information program and it does have the various components that are essential to it.

In my opinion, your theme, The Information Manager in DoD, is very, very appropriate. All of us, and I can't think of a single exception, are keenly aware of the problems that we face with the shrinking resources, that is, both dollars and people. If we are to survive, all of us must do a better job of managing the DoD information programs. With the current problems, we can also expect that organizations like

OMB and GAO will, in fact, be taking a closer look at how we manage our information resources. Ken Hunter this morning, and also at a recent symposium at the National Bureau of Standards, which was on the subject of information resources and management, made that abundantly clear. They will be looking at how we manage our programs and what we are doing with the resources that are under our control.

This afternoon, instead of one topic, I thought that I might perhaps keep you awake, or more interested, if, in fact, I talked about a variety of topics. I will briefly touch on a number of things that are going on within DTIC and also some of the things that are going on at the OSD level. There are about eight of these topics; let me just very briefly run through these. I hope I don't scare you to death, because I won't spend a lot of time on each one. I am going to go over the top ones lightly, and certainly that will leave time for some questions. If, in any of these, you have a particular interest, you can see us or give us a call sometime later.

First of these topics then, of course, is one that has already been mentioned in the Gamota paper this morning; that is, the Defense Technical Information Conference. The second topic will be updating the Defense Technical Information Program directives. The third, the use of a DTIC computer as an experimental research and development management support facility. Fourth, an expanded data base support to OSD. Fifth, a research and development managers orientation package. A sixth one, near and dear to the hearts of many, is the DTIC services charge policy. A seventh one is the Information Analyses Centers, and perhaps last but not least is improved on-line access to the bibliographic data base.

Let me kick it off with the first one, which again is the January 1981 Defense Technical Information Conference. I believe that most of you know that when Dr. Ruth Davis joined the Department of Defense she brought with her an interest in the DoD technical information programs that had been lacking since the early days of the 1960's, the days when Walter Carlson and others were very, very much in evidence. When she left, many of us wondered whether we would also lose that renewed interest in the technical information programs. Fortunately, her replacement, Dr. A. Bement, who is now the new Deputy Undersecretary, appears to share her interest and has assigned the responsibilities for technical information to Dr. George Gamota.

Gamota's interest in technical information was adequately expressed in the keynote address that you heard this morning. From my own personal contact with the man I know that he is very much interested. I do think that he will give us the support that we need if we do our part. Now, to assist him in the identification of the problems and the issues, he has asked DTIC to assist in the planning of a Defense Technical Information Conference. The Conference will be held at the National Defense University at Ft. McNair, January 28-29, 1981.

The purpose of the Conference is to provide a forum to revitalize the policy and management of the defense technical information programs. This will involve a broad cross section of DoD and contractor people. Not only will it involve the technical information people, but it will involve the R & D program managers, as well as some of the engineers and scientists. It is going to be a limited conference with attendance by invitation only. Dr. Gamota has had a lot of experience with this type of conference, and he feels that by keeping the numbers small, he will be able to more effectively achieve the results that he desires. Again, the purpose of the conference will be to assist him in identifying the issues, the problems, and then in turn to define program objectives and goals that all of us can use in our budget-planning processes. Plans for the conference are now being finalized.

Discussion papers outlining major problem areas and issues are being developed, and a number of people in this room have, in fact, participated in defining some of the issues and problems. Next, Dr. Gamota and his counterparts in the military services and the defense agency (and, by the way, this is going to be at a fairly high level in the assistant secretary level for the research and development in the military services) will meet later this month to discuss the makeup of the conference participants. The idea is that the conference itself will be in a workshop type setting, and the participants will be asked to recommend the priority needs for the program's attention, and as I have mentioned before, for the establishment of program planning objectives.

Dr. Gamota sees this conference as just a first highly visible step towards developing improvements in the organization and management of the Defense Technical Information Program, in the formulation of long range program objectives.

The second topic that I mentioned was updating the Defense Technical Information Program directive. As you may recall, Dr. Davis, during her brief stay in Defense, placed a high priority on revising and updating the family of very old (mostly dating to the 1960's) DoD directives and instructions that are related to technical information. A committee chaired by the Navy prepared a set of draft revisions that unfortunately got bogged down in OSD because of some administrative procedural problems. Therefore, Dr. Gamota, who also shares the same high interest in getting these directives updated, has asked DTIC to prepare a set of revisions to these directives and instructions, and we have submitted to him the drafts for his consideration.

The first is DoD Directive 5136, which is the Defense Technical Information Program. It is a short document which attempts to establish and define the technical information program. It is basic policy, and its intent is to create a program manager for technical information within the Deputy Undersecretary's office. The second draft is Defense

Instruction 512943, which is the assignment of functions for the Defense Technical Information Program. This defines the functions and responsibilities for the the operation and management of the various parts of the Defense Technical Information Program. Lastly, is DoD 15138, which deals specifically with the Defense Technical Information Center and defines our new role and responsibilities within the Defense Technical Information Program.

Now, these revisions really are not all that new, and they don't really change that much. In fact, they are patterned very closely upon the existing directives. In discussions with Dr. Gamota, it was felt that this was the best way to get them moving through the approval cycle. I think you also have to recognize that many of the original policies and concepts are still valid today. The changes are really aimed more at recognizing the changes in information technology, some of the functions that are ongoing, and also addressing some of the organizational relationships and issues. It is also felt that the approval and publication o' these three directives and instructions will pave the way for other rarely needed directives.

The areas which we feel need attention include the distribution statements, technical document preparation, distribution functions, bibliographic control functions, and, of course, improving the reporting to the Work Unit Information System and other data bases that are of particular interest and concern to the R & D managers. Dr. Gamota has taken these drafts and informally sent these to his counterparts in the military services and defense agencies for their comment. The comments have been coming in, and, in fact, I think we have them from most of the organizations. We will next prepare a 'redo', incorporating suggested changes that he wants put in, and then go through the formal coordination process which I think most of you know as the "blue sheeting".

The third topic that I wanted to talk about was the use of a DTIC computer as an experimental research and development management support facility. One of the principal elements of our expanded mission and responsibilities that was identified by the Deputy Undersecretary's office was for DTIC to take on an expanded role and develop some internal capabilities to support the R & D managers, particularly at the OSD and military department levels. An initial step that we have taken towards this objective was to reconfigure one of the computers that we have as a unclassified time-sharing facility to: 1) provide quick response, capable of developing and operating decision support systems again for the OSD level, 2) provide a capability for experimenting with and developing a new technical information service and data bases, and 3) help us support our internal management needs at DTIC. In June of this year, an 1108 system that we had which was previously used to support the DROLS on-line system was sanitized and reconfigured to physically and logically separate it from the classified operations at DTIC. An extensive set of UNIVAC-supported communication software packages

and procedures for dial access has been implemented. A text-editor system has been put in place and we are also obtaining access to other software packages, such as the Statistical Package for Social Sciences (SPSS). How about that? At this time, the 1108 R & D management support system is not a DoD-wide service bureau. Of necessity, this service is limited to OSD and department level requirements. That's to give us time to develop it in a logical and sane manner, but some of the current and potential applications are of interest to you. For example, we are working right now to support the other side of the defense community.

I have been talking about research and development, but the MRA side has asked us to support a data base that is related to people research and studies. We have also been asked to support a tri-service manufacturing technology data base and the initial development of the service level manufacturing technology program and information system. We are also working to support and expand the DARCOM on-line editing system. Most of you may know that as OLE, which does supply input to the work unit information system. We are also considering the creation of a data base for the OSD meetings and symposia listing that they put out up there. Presently, this is done in a strictly manual fashion. We have also been asked to look at a DoD-wide data base of references to scientific and technical data bases. All of us are beginning to look at some of the requirements down the road. I have already mentioned the internal DTIC support, in that we are getting into the new century by interactive programming, using on line, instead of punch cards systems.

The fourth topic is expanded database support to OSD. I have already talked about that, so I think we can skip over that. If you have some other questions later on, we can address that, but again, I would emphasize that this is primarily in the area of exploring new data bases that are needed to better manage the R & D programs within defense.

The fifth topic that I had mentioned is a research and development managers' orientation package. The orientation is to defense technical information. When Ruth Davis was the Deputy Undersecretary, she requested that we develop a short, slick orientation presentation that could be given to current and newly-arriving OSD research and development staff members. The purpose was to motivate them to use the information resources that were available (DTIC, the local libraries, etc.) and also to support these programs. To carry out that requirement, we contracted with the Capital Systems Group in Maryland who produced the requested package. They initially did a study to assess the requirements of the various audiences that we would be presenting it to and the characteristics that they would be looking for.

The first package has been produced and is oriented specifically towards the OSD or departmental level manager. This is a short,

broad-brushed coverage of the potential value of technical information and the kinds of services and information available from DTIC and other sources. It also covers the responsibilities of managers to insure that timely and complete technical information is reported to the various information systems. The package is an audivisual component. The time is thirteen minutes when you run through the presentation that they prepared. It's a tape cassette, with cues for advancing a 35 mm slide projector. The presentation is also modular in design, so that it can be stopped at any point and you can add your own two bits, four bits, or whatever. It is also designed so that you can do a manual narration, rather than using the audio part of the presentation. So we have tried to build a lot of flexibility. We are now having multiple copies prepared, so it will be available to others who would like to use it.

Before I get into the next item, I think I need another drink of water, because that topic is DTIC service charges. I think most of you know this topic has generated a lot of interest and certainly a lot of concern. I think we have also created a lot of confusion, so let me try and straighten out at least some of these things.

Most of you know that DDC first implemented service charges back in 1968, and that was for requests for hard copies of documents. This charge was directed by the person who was then the Director of Technical Information at the OSD level. And it was done (now, this is a personal opinion) essentially for one reason, and that was to control the growth of requests. It was felt that many of these requests were unwarranted. So what was anticipated did in fact happen: the requests shifted from hard copy to microfilm. In 1971, we came along with a charge for microfiche, again essentially for the same reason.

In 1978, when DTIC received permission from the General Services Administration to acquire the new computer system, the UNIVAC 1182, they placed the requirement upon DLA to install a user/customer "charge-back system for data services". DTIC, in turn, was directed by DLA to develop a plan to implement this requirement, and we did in fact develop a plan that was to be implemented in three phases. Phase 1, in fact, has been implemented as of October 1 of this year. It included charges for all dial access to the on-line system. In this phase, the charges are very compatible with what other government agencies (Energy, NASA, National Library of Medicine, etc.) are doing. Of course, it's also very compatible with Lockheed, SDC, and others.

Now in Phase 2, which was scheduled for 1 October 1982, all terminals, including the hardwired terminals, would also be charged. In Phase 3, which was scheduled for October 1983, users would be charged for other output services involving ADP. In our attempts to arrive at a user charge policy for Phases 2 and 3, several factors came to light which cast some doubt on the approach that we were using. Some of these concerns surfaced as a result of regulatory documents issued

subsequent to the GSA requirement. Therefore, we in DTIC informed DLA that we should not go beyond Phase 1 until a DLA-DoD policy was established, which would be applied uniformly to all DoD components. This is a big problem, and I don't anticipate any quick solutions. Therefore, we in DTIC will not add any other charges for document services or access to the on-line system, unless we are directed to do so by higher authorities.

I think Ken mentioned this morning that when you talk about service charges, you are not necessarily talking about the transfer of cash. There certainly is room within the concept simply to make other organizations aware of the services that they are getting and the value of the services. So there is a lot of work that needs to be done. I certainly think that one of the problems, not only within DoD, but within the total federal establishment, is that there has not been a hard look at what the policy should be, what are the objectives, what are they trying to accomplish, etc. So there is work that we in DoD and other organizations need to do as well.

The seventh topic that I wanted to touch on briefly was the Information Analysis Centers. Another of the key elements in the expanded mission for DTIC was the operational management of the DLA administered IAC. The total DLA responsibility for the operational management of these centers has now been transferred to DTIC. These IAC include the Mechanical Properties Data Center; the Metals and Ceramics Information Center; Non-Destructive Testing Information Analysis Center; Thermal, Physical and Electronic Properties Information Analysis Center; the Chemical Propulsion Information Agency; the Infrared Information Analysis Center; the Reliability Analysis Center; and the Tactical Weapons Guidance and Control Information Analysis Center. There are nine of those, I believe. Also, we have just recently completed arrangements to sign a contract for a new information analysis center. This will be the Metal Matrix Composite Information Analysis Center. Until recently we had another center, and that was the Machinability Data Center. That center has decided to operate independently of government support which, of course, we encourage. Therefore, we will wait to see whether Defense can get the support it needs before we decide on whether we need government support for an IAC in this field as well. Now what are the directions in which we will move?

Our first initial efforts will be aimed at integrating the IAC program more effectively with the rest of the DoD technical information programs. We have looked at these as separate programs for too long. We really have not attempted to marry the two, so that we can work more closely on common objectives and goals. We will be working very quickly towards joint marketing and promotional efforts. We are already working with resource sharing and improved program planning. These things will receive top priority in the next few months. We recently held an Information Analysis Center Conference. Jack Kolb of the Army, DTIC, and people from the Navy, all participated. They identified a

number of issues and problems that will become input to the discussion part of the DoD Technical Information Conference in January.

The eighth topic, and the last one that I will talk about this afternoon, is improved on-line access to bibliographic data. Of course, this is within DTIC, and this is a part of our ADP redesign effort.

As you probably have heard many times during the past years, DTIC has underway a major redesign effort aimed at changing its data processing systems. The major directives of this effort are to upgrade DTIC systems to be more responsive to our user community in providing present products and services; and, secondly, to provide greater flexibility and capabilities in introducing system changes or the introduction of new data bases and services. A third objective is to create a greater degree of integration and interface between the various data bases that are maintained at DTIC. I think you know we have the work unit, the program planning, the technical report, the independent research and IAC files. You name it, and we probably have it. Each of these in the past was set up as a separate data base. So our efforts are aimed at making them more common in use and input.

Of course, one very key factor appropriate to the topic under discussion is to permit the expansion of services during periods of decreasing or straight line funding. Our approach to this redesign effort is to develop a complete set of system requirements and specifications for the new system. It will then be divided into various subsystems to be developed, designed, and programmed on a phased basis. The priority and schedules for the implementation of the subsystems will be established by a very careful analysis of the benefits and pay-offs to the user community. One of the subsystems which will not be completely redesigned will be our on-line system, DROLS. We believe that this is relatively modern and performs reasonably well. I don't know if there is a perfect system. Accordingly, our approach to the on-line system will be to identify major modifications or enhancements which will again be scheduled and phased in during the next few years.

In the near future, there are some changes of interest to you. First, a very important one is diversified terminal access to DROLS. Until 1 October 1980, the only access to that on-line system was by or through a highly specialized terminal, the UNISCOPE. For several years, we had the desire to modify our systems to permit the use of a wide variety of other terminals, often already available in the user's location. I am pleased to announce that this new service was, in fact, implemented on schedule on 1 October of this year. Not surprisingly, there has been a great deal of interest in this capability. Over one hundred sixty new users have indicated an interest in the service, eighty of whom are already scheduled for training and registered for access to the system. This service is limited to unclassified sites.

Another thing that we have done is to create a new data communications capability for DROLS. Until now, the on-line users were required to arrange for dedicated line access, unless they were in the immediate vicinity. This generally required a very costly dedicated telephone line. Now, effective this week, DTIC has subscribed to TYMNET, a commercial data base communications network. This will greatly reduce the communications cost. It's not going to cost you anything because we are going to pay for it as part of the connect time. Let me rephrase that. You are not going to notice the cost, because it's going to be a part of the connect cost. We figured that was the easiest way to take care of the accounting, etc. At least initially, there will not be a separate cost for the communication network. Of course, depending on what happens, we may have to change that sometime in the future.

The next thing that we have done is improve the bibliographic display. For many years, DTIC published an unclassified Technical Abstract Bulletin, which contained unclassified references to classified reports. However, if you were an unclassified user, you were unable to access about half that were classified. Our DTIC bibliographies were handled in a similar manner. Our redesign effort is working on this problem in two phases.

On 1 July 1980, the unclassified DROLS users were permitted to access citations to classified reports when the entire computer record was declassified. This represented an increase of about twenty-five thousand records of the roughly one hundred ten thousand classified in the total system. By the way, that number is out of a total of about one million-plus records that we have. On 15 November 1980, we will also permit unclassified DROS sites to access all records and display all unclassified data elements contained in our computer record. If it is a record for a classified report, sometimes one or two of the data elements (for example, the title or the abstract or sometimes the descriptor set) might be classified. In the new approach, you will see everything, except that data element which is classified. In other words, if the title is classified, you are not going to see that, but you would see the abstract or the descriptor set and all of the other data elements. We think that this is going to be a great improvement for the on-line system.

As our redesign efforts continue, we expect that many other improvements to our services will be announced and implemented. Many of the improvements to DTIC internal operations are not going to be announced. However, I think they will be evident to you, that you will get more timely services and quicker response to requests.

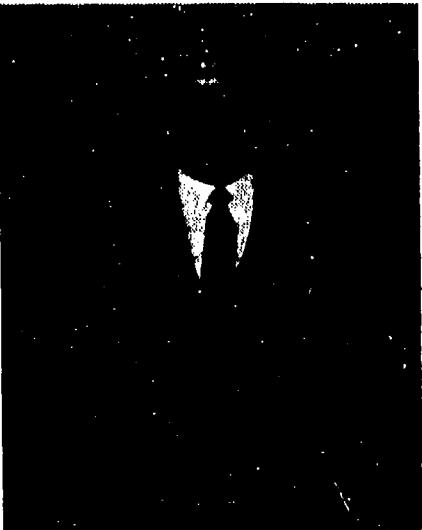
Paul, I think my time is running out. I've probably used up Walter's and Jack's time as well. I'll stop here, even though there

are a number of other things that I think are important that we could have talked about, such as the shared bibliographic input experiment. But let me leave those, simply saying, if you are interested in those things, see either Paul or myself.

Before I leave, I do want to mention one other thing. Most of you are aware of the hangups group. I think all of you know Ruth Smith. Ruth prepared the first edition of a Guide to Defense-Related Information Resources. Recently, DTIC, with help from the Army and the Navy, asked Ruth and group to update. They did and got a lot of help from the military library community. So, as an expression of our appreciation for your help, we have a copy for each organization available down at the registration desk. If other copies are needed, I would suggest that you get in touch with Ruth Smith. Her address is in the list of conference registrants. It's going to be, of course, available through NTIS and DTIC as well. We have only one hundred fifty copies here. Ruth couldn't carry anymore than that on her back. We tried to use a whip, but it didn't work too well. So please, again only one copy to each organization. If you need any others, get in touch with Ruth. If you don't want to take it, of course, you can always order it.

I hope that all of you share my feelings and recognize that information management in the DoD is on the upswing. If all of us do the part that we can do, I think that the DoD technical information program will, in fact, reestablish itself as the best in the federal government.

Thank you all.



THE AIR FORCE SCIENTIFIC  
AND  
TECHNICAL INFORMATION OFFICE

Walter Blados  
STINFO  
Andrews AFB, MD

I am kind of new to the technical information program, and so I consider it a privilege and a personal pleasure to address such a distinguished group. I think I am learning a great deal more, and I am getting more information than I could ever impart to you.

Currently, the Air Force Scientific and Technical Information Program, better known as the STINFO program, is an integral part of the Defense Technical Information Program. The STINFO program is designed to improve the flow of technical information through and from the Air Force to assist management. This flow of technical information is necessary to insure that scientific and technical information generated by RDT&E programs is used to provide the maximum contribution to the advancement of science and technology in areas related to Air Force and DoD interests and to contribute wherever possible to the national research and development effort. This flow of information is also necessary to secure economies through eliminating undesired duplication; to improve the RDT&E process by providing information and services; and to improve efficiency of management activities at all levels, from policies and staff elements to field activities; and to support the information needs of scientists, engineers and managers.

Since the flow of S&T information is so vital, Air Force organizations promote the dissemination of S&T information by publishing and effecting primary distribution of technical reports, by publishing and

effecting primary distribution of secondary journals, by encouraging individuals to contribute material to technical journals; by proposing methods by which the services provided by DTIC and other dissemination activities can be made more responsive to user needs; and by insuring that each approved report containing S&T information is made available to DTIC.

In its efforts to promote the best and most comprehensive S&T information, the Air Force attempts to link R&D programs with R&D efforts by sponsoring conferences, symposia, and other technical meetings, by encouraging participation at symposia and technical meetings through wide-spread announcements and selective invitation, by supporting personal visits and exchanges among colleagues of the S&T community, and by supporting personal visits and exchanges between the S&T commission and the operating units of the Air Force, as well as with eligible members of the general public.

The Air Force maintains technical libraries and technical information centers as an integral part of the overall STINFO and Air Force library programs. These libraries emphasize complete responsiveness to customer needs by providing reference, bibliographic, and acquisition services, in addition to storage and retrieval facilities. We insure that user needs are considered when planning for S&T information projects, functions, and activities. We encourage experimentation in improving techniques of handling, storage, and retrieval. We also encourage conducting or participating in experiments directed toward developing improved methods and techniques for linking the results of RDT&E efforts with the user.

To fulfill its mission objectives, the STINFO program operates in conjunction with the data management program, the public information program, the technical intelligence program and the foreign disclosure program. The Air Force Systems Command (AFSC) has been designated as the program monitor for Air Force S&T information activities. AFSC has the authority and responsibility to act as the Air Force program manager and as the Air Force single point of contact required by DoD instruction 5129.43. STINFO offices have been established at AFSC subordinate headquarters divisions, centers, laboratories and at the other major commands, such as Air Force Logistics Command, Tactical Air Command, Strategic Air Command, Military Airlift Command, and the Air Force Institute of Technology.

The STINFO officer is responsible for the orderly flow of S&T information of interest to the Air Force. In the performance of his duties, the STINFO officer establishes procedures for obtaining technical information services from DTIC, takes the lead or assists in technology transfer efforts, and maintains an inventory of the S&T information activities and resources of his or her organization. In addition, the STINFO officer participates with the data management officer in establishing technical data requirements to insure close coordination

of efforts in the data management program with activities of the S&T information program.

The STINFO officer also seeks to reduce the time interval between the completion of the RDT&E effort and distribution of the report of results, acts as consultant to the technical library concerning technical information needs of his organization, coordinates library requirements with a command librarian, and maintains close liaison with Air Force foreign technology specialists to insure that foreign research results are available to Air Force scientists, engineers and managers. The STINFO officer explores methods for improving S&T information systems and procedures and plans improvement actions. He also performs qualitative review of technical reports to include pertinence of contents, adherence to standards, meaningful titles, and the initial distribution, and he prepares the limitation statement. He then submits the required copies of each technical report to DTIC.

The STINFO officer also periodically reviews most technical reports having assigned distribution limitations statements to insure that the limitations on release remain valid and are according to established policy. In addition, the STINFO officer conducts an indoctrination program designed to assist scientists, engineers, and managers to fulfill their responsibilities relating to the S&T information program, and informs them of available S&T information products and services. In so doing, he or she maintains current listings of pertinent clients, technical meetings, and symposia and informs interested personnel of such meetings and symposia. Last, but not least, the STINFO officer must keep abreast of the state of the art in information sciences and information handling techniques.

In an effort to expand the exchange of S&T information, the Air Force Information for Industry Office, under the direction of the Air Force Systems Command, was established with the express purpose of providing a focal point wherein the industrial community could obtain information on DoD and U.S. Air Force acquisition, research, and development requirements, plans, and future needs.

The Air Force Information for Industry Officer, better known as the IFIO, serves as an access point to DoD and U.S. Air Force planning and requirements documents for representatives of industry, small businesses, universities, and non-profit institutions registered for access to DoD information services. Air Force IFIO's are located with the U.S. Army, U.S. Navy, and the tri-service industry information centers in Alexandria, Virginia; Wright-Patterson Air Force Base, Ohio; and Pasadena, California. Through these facilities, the U.S. Air Force hopes to encourage and facilitate the exchange and exploitation of scientific and technical breakthroughs, innovations, and information. As a result of the cooperation, both within the Department of Defense and among its contractors, the Air Force expects to tap the resources of the scientific community in the interest of national defense.

To reach those organizations that are now registered in DTIC under a DoD contract or grant, the Air Force initiated the potential contractor program known as the PCP. The PCP is a means whereby the Air Force can support qualified non-government individuals or organizations by providing them with access to pertinent documents and/or guidance on Air Force research and development activities and goals. Through the PCP, individuals or organizations who are not working for the government under a DoD contract or grant are sponsored by the U.S. Air Force for DTIC services and for attendance at classified technical meetings and symposia. Participants in the Air Force PCP are non-government individuals or organizations which comply with the requirements of the PCP. Compliance is considered to have occurred when the necessary documentation and registration material have been submitted to the appropriate Air Force field command, a technical evaluation has been made, and the applicant has been approved as qualified in the capability to engage in research and development of interest to the Air Force (with a reasonable probability for successfully performing an Air Force contract or grant in a R&D area of mutual interest).

The basic Air Force directives dealing with the STINFO program are:

1. Air Force Regulation 80-12 -- describes procedures for reporting technical and management data for ongoing work at the work unit level within the research development test and evaluation program;
2. Air Force Regulation 80-40 -- which explains the purpose of the DoD scientific technical information program and tells how it is administered. It requires Air Force commanders who generate or use scientific and technical information to implement the DoD program, and it outlines the specific responsibility for doing so. It also states the responsibilities of the S&T information officer;
3. Air Force Regulation 80-43 -- establishes Air Force policy on sponsoring or co-sponsoring a technical symposium, conference, convention, or meeting. It outlines the criteria for approving such participation by an Air Force organization, tells who may authorize such participation, and explains how the proceedings are to be published and distributed;
4. Air Force Regulation 80-44 -- establishes policy, assigns responsibility, and prescribes procedures for Air Force support of the Defense Technical Information Centers;
5. Air Force Regulation 80-45 -- implements DoD directive 5200.20 and establishes policies and procedures for marking

technical documents to show that they are either releasable to the public or that their dissemination must be controlled within the U.S. government.

A new regulation currently in draft establishes the Air Force Information for Industry Offices, provides policy, and assigns responsibilities for the dissemination of DoD technical information.

The above Air Force directives are supported by Air Force Systems Command supplements and by the following AFSC regulations: AFSCR 80-20 which establishes policies and procedures for the preparation, review, acceptance, publication and distribution of AFSC technical reports generated in-house or by contract, subcontract or grant. In addition to the Air Force and the AFSC regulations, correspondence in the form of STINFO advisories are issued to convey current and timely interpretations of policies and/or guidance to insure consistency throughout the Air Force STINFO program. These advisories reflect current STINFO policy and are incorporated into regulations when and where appropriate. To promote a two-way dialogue and flow of information, each field STINFO officer is encouraged to submit items for policy interpretation, for resolution, or for qualification.

Currently, the Air Force STINFO program needs revitalizing. There are a number of immediate goals in the long range scheme of STINFO revitalizing, including increased management awareness of services. We had to conduct a STINFO officers policy conference to review existing policy, share ideas on how to improve STINFO management and procedures and determine future trends in the STINFO program. We have that scheduled for the 18-20th of November at Wright-Patterson Air Force Base. It looks like we will have a pretty good turnout. We also need to conduct an Air Force internal study to measure the status of the STINFO program.

Quite frankly, I don't think we know where we are at this particular time, and that is what we want to learn. We want to update all the STINFO regulations, and we also want to investigate the feasibility of establishing and/or providing training programs for STINFO officers. There was a training program at one time; however, it was phased out. I am not quite sure why. While there is a great deal of work to be done, we feel confident that the Air Force STINFO program will receive the necessary recognition and support to become an even more viable tool in the ultimate goal of information transfer.

Thank you.



## THE NAVY DEPARTMENT LIBRARY

Stanley Kalkus  
Director, Navy Department Library  
Washington, D.C.

First of all, when you listen to my presentation please keep in mind that I am the only one on the panel who is not directly involved with the Technical Information Program. On the other hand I am the only practicing librarian on this panel. I am here in place of Mr. Perry Newton, the Director of the Navy Technical Information Program, who was unable to come, but who gave me his and his staff's support, and provided the information I am passing on. That is the first part of my presentation; the second part (and to me the more important) is a report on a program developed by cooperative effort between the NATIP office and the Coordinator of Navy libraries. I believe that this program is in line with future developments as they are seen by military librarians.

Let us just have a brief look at the mini-session program of this workshop. Section A is entitled "Fighting Obsolescence" and it intends to discuss the diversification librarians need to meet the demands of contemporary DoD information management. Section B, "Managing Information Resources", is concerned with "the importance of nontraditional planning and management for the future". The role of libraries in information management will be the subject of Section C on "Marketing Information Resources" and following is the program of Section E on "Information Management". This session will serve as stimulant for future directions in the military library community. As you have noticed, I have skipped Section D which is concerned with the infamous subject of contracting-out. I believe I do not need to go into any details; besides, I will participate on the panel of this section and I

will save all my comments for tomorrow. It seems that we all are pre-occupied with this subject, or at least were during the past year and perhaps the following slide (Slide #1) sums up the whole problem. It is a rather simple message, but one that shouldn't be ignored.

WANT COMMAND SUPPORT/

- o PROVIDE COMMAND WITH SUPPORT
  - o ADD VALUE
  - o GET IN MAINSTREAM OF COMMAND EFFORT
- OR  
GET OUT!

The next slide (Slide #2) provides an overview of the function of the Navy Technical Information Office. The director of Navy Technical Information is responsible for all aspects of the acquisition, handling, and dissemination of scientific and technical information within the Department of the Navy and other government and private organizations. His general responsibilities include Navy interface with industry, technology transfer, management information systems for RDT&E and the Security Review Program.

### NAVY TECHNICAL INFORMATION PROGRAM

- o DEVELOPS NAVY TECHNICAL INFORMATION POLICY
- o NAVY CONTACT WITH OSD
  - o PREPARED DOD & NAVY TECHNICAL INFORMATION DIRECTIVES
- o NAVY-WIDE PROGRAMS
  - o INDUSTRY INFORMATION
    - o NICRAD
    - o NARDIC
  - o TECHNOLOGY TRANSFER
  - o DEFENSE TECHNICAL INFORMATION CENTER
  - o STANDARD DOD R&T&E MANAGEMENT SYSTEM (W.U.I.S.)
- o NMC PROGRAMS
  - o SECURITY REVIEW
  - o STUDIES AND ANALYSES
  - o BRIEFINGS FOR INDUSTRY
  - o LABORATORY PROGRAM SUMMARY
  - o INDUSTRY IR&D

Detailed information on the various programs is provided in the brochures which were handed out to you. [ed.: Copies of brochures are not available.] I would like to stop on two points: NICRAD and NARDIC. I personally dislike acronyms; I believe they were designed so that the services would confuse each other and therefore, for the benefit of Army and Air Force librarians, and probably also some Navy librarians, I will decode them. Also, and this is my primary reason, these lead me directly to the proposed program in which the Navy libraries are expected to participate.

1. NICRAD - Navy/Industry Cooperative Research and Development Program. This program was established to inform the scientific and technical community of problems confronting the DoD and the DoN, and provide a mechanism for interface of classified and unclassified technical information on existing Navy requirements and on existing R&D.
2. NARDIC - Navy Acquisition, Research and Development Information Center, is the focal point within DoN for making R&D planning and requirements information available to industry. It was established because of the recognized benefit to the Navy of civilian participation in research and development relevant to Navy requirements.

The Navy Technology Transfer Program was formally initiated in 1972 and it is becoming more effective with each passing year. Technology transfer is a process through which technology developed by Navy research and development laboratories is transferred to the private sector. Now back to NARDIC and the Industry Information Program. The following slide shows the objectives of the program.

NAVY TECHNOLOGY TRANSFER PROGRAM

- o COORDINATE TECHNOLOGY TRANSFER PROGRAM, AGENTS AT OVER 60 NAVY ACTIVITIES
- o PREPARE ANNUAL REPORT FOR SECRETARY OF THE NAVY
- o NAVY ORIGINATED FEDERAL LABORATORY CONSORTIUM ON TECHNOLOGY TRANSFER
- o TRANSFERS HAVE INCLUDED HARDWARE, SOFTWARE, MANAGEMENT TECHNOLOGY
- o USERS INCLUDE FEDERAL, STATE AND LOCAL GOVERNMENT AGENCIES; INDUSTRY; SMALL BUSINESS; AND NON-PROFIT ORGANIZATIONS
- o MONTHLY NAVY TECHNOLOGY TRANSFER FACT SHEET

The objective number nine, "Get Navy librarians actively involved," brings us to the second part of my presentation: to the participation of Navy technical libraries in Industry Information Program, which will definitely be of interest to most librarians here.

#### AGGRESSIVE INDUSTRY INFORMATION PROGRAM

##### OBJECTIVES:

1. STRENGTHEN NAVY/INDUSTRY RELATIONSHIPS
2. REAP BENEFITS OF INDUSTRY PROGRAMS FOR NAVY
3. BUILD STRONG ACTIVE INDUSTRY PROGRAMS
4. ENSURE REAL TECHNOLOGY BREAKTHROUGHS
5. PROVIDE TECHNOLOGY PLANNING HORIZONS
6. ESTABLISH INDUSTRY INFORMATION IN MAINSTREAM  
OF NAVY MANAGEMENT
7. IMPROVE THE COMMUNICATION PROCESS  
USE PERSONNEL QUALIFIED TECHNICALLY AND  
MANAGERIALLY  
PROVIDE CREDIBLE FEEDBACK TO INDUSTRY  
MOTIVATE AND REWARD PARTICIPANTS
8. INTERWEAVE INDUSTRY INFORMATION AND NAVY  
TECHNOLOGY PROGRAMS
9. GET NAVY LIBRARIES ACTIVELY INVOLVED

The rest of my presentation is more or less a slide show, please interrupt and ask any questions on the participation of libraries in the Industry Information Program.

PARTICIPATION OF NAVY TECHNICAL LIBRARIES  
IN INDUSTRY INFORMATION PROGRAM

- o AS LOCAL INDUSTRY ACCESS POINT TO:
  - o NAVY PLANS AND REQUIREMENTS
  - o DTIC ON-LINE RDT&E DATA BASES
- o AS PARTICIPANTS IN NAVY - INDUSTRY IR&D PROGRAM

We would expect that some of the libraries that will be selected for the pilot project will act as the local industry access point to Navy plans and requirements, to DTIC on-line data bases, and to participants in the Navy Industry Research and Development Program.

SERVICES TO BE PROVIDED BY PARTICIPATING  
TECHNICAL LIBRARIES TO INDUSTRY

- o ACCESS TO HARD COPY NAVY PLANNING & REQUIREMENTS INFORMATION
  - o PEDS (PROGRAM ELEMENT DESCRIPTIVE SUMMARIES)
  - o 1498 (WORK UNITS)
  - o 1634 (PLANNING SUMMARIES)
  - o NDCP - (NAVY DECISION COORDINATING PAPERS)
  - o OTHER
- o ACCESS TO DTIC ON-LINE DATA BASES

Services to be provided by participant technical libraries to the industry. Once again this is self-explanatory and before you ask how these services will be provided, let me go to the next slide.

Operating conditions. Here I would like to stress that by no means are the libraries going to be open to just anybody. The potential customers from the industry will be selected and approved by NATIP. Services by the library will be provided by appointment only.

OPERATING CONDITIONS

- o SERVICE TO INDUSTRY BY ALL REASONABLE MEANS
- o SERVICE TO SELECTED INDUSTRY USERS ONLY
- o HARD COPY INFORMATION PACKAGE PROVIDED BY NATIP
- o TERMINAL USAGE CHARGES IN RELATION TO PROGRAM FUNDED BY NATIP
- o NTL EFFORTS WILL BE COORDINATED BY COORDINATOR NAVY LIBRARIES (CNL)

Mr. Newton, his staff, and I have discussed this program and have jointly developed the following schedule:

We will start with a few selected libraries and eventually expand somewhat the circle of participants. It is important that the geographical area be as wide as possible and that the participants are willing and capable of providing the needed support.

LIBRARY INDUSTRY INFORMATION PROGRAM (9 OCT 1980)

	<u>TIME FRAME</u>	<u>RESPONSIBLE</u>
1. INITIAL PRESENTATION TO NAVY TECH. LIBRARIES (NTL)	OCT 80	CNL
2. SELECTION OF NTL PARTICIPANTS FOR PILOT LIBRARY INDUSTRY INFORMATION PROGRAM	NOV 80	CNL & NATIP
3. SELECTION OF PLANNING & REQUIRE- MENTS MATERIAL NEEDED BY PARTI- CIPANTS	NOV 80	NATIP
4. GENERATION AND PROVISION OF GUIDANCE/RULES FOR PARTICIPANTS	DEC 80	NATIP
5. DISTRIBUTION OF BASIC PACKAGE OF PLANNING & REQUIREMENTS TO PARTI- CIPANTS	JAN 81	NATIP
6. ARRANGE FUNDING FOR PROGRAM RELATED NTL TERMINAL USAGE	JAN 81	NATIP
7. LETTER NOTIFYING IR&D INDUSTRY OF LOCAL NAVY INFORMATION ACCESS POINTS	FEB 81	NATIP
8. ASSESSMENT OF INITIAL OPERATION OF PILOT PROGRAM	JUN 81	ALL PARTICI- PANTS
9. REVISE PILOT PROGRAM AS NECESSARY	JUN 81	CNL & NATIP
10. LINE UP ADDITIONAL NTL PARTI- CIPANTS	JUL 81	CNL
11. INFORM SELECTED INDUSTRY OF ADDED NTL ACCESS POINTS	AUG 81	NATIP

Please, once again bear in mind that I am not with the Navy Technical Information Program. I will try to answer any questions which I am capable of answering and will refer the rest to Mr. Newton's office.

I would like to close with a reminiscence of a meeting held three years ago in Oslo, Norway, where Mr. Lowry of Bell Laboratories read a paper on the "Library in the Future". He made the following comments: "The library of the future will be an active communications device or it will wither and be essentially a warehouse operation". He put it somewhat crudely, but the sentiment is true. However, I personally don't see any reason for alarm. After all, since the establishment of the first library, the Library of Alexandria, we have had some progress. We now rarely handle scrolls and parchment; and we have moved all the way to microfilms and on-line retrieval services.

The second comment that stuck with me all these years was: "We will find that library business will be too important to be left to librarians". Now every time I hear about an "information specialist", I am reminded of that comment. With all due respect to my non-librarian colleagues on the panel and in the audience, I believe that the library business of the future, as of today, will be too important to be handled by anybody but librarians.



#### ARMY TECHNICAL INFORMATION

Jack Kolb  
Principal Technical Information Officer  
Department of the Army  
Alexandria, VA

I want to start by saying that the courtship of librarianship and technical information activities has gone on now for about three or four years and I think it has reached the point that this meeting represents tremendous evidence of a marriage. From the looks of some of the people in the audience, I would think it would be great if we could get on with the honeymoon! I'll follow the format that was given to me, so that it may make a little more sense to some of you people who are perhaps not coupled to the interaction of technical information and library management. I want to speak primarily in terms of policy making, the functional responsibilities that we have in technical information management, the potentials that we have for changes, the factors affecting the present and future, and technical information.

In the area of the mandates for policy making, what is policy? Usually policy is thought to be the way that you have decided that you are going to do something. To do that you really must document it so that it can be referenced by anyone who cares. So my first chart shows the regulations that we have existing in the Army that involve policy and technical information management for which my office is the component. I am obviously responsible for component implementation of these regulations. It's not important that you read the detail. I think the important thing is to realize that we do have seven regulations. Most of them are somewhat out of date. I emphasize that, because we realize that they are out of date and we have done much to revise them. The one thing that has held us back from issuing revisions is that they

relate directly to the DoD regulations that Mr. Sauter mentioned in his presentation. Therefore, when the seven DoD regulations are sanctioned, we will have these regulations revised in toto and updated.

The two that have the most relevance to this audience would be the last two, 70-31, Standards for Technical Reporting, and the STINFO program. The STINFO program is the only one that addresses libraries. Effectively, it says that we are responsible for policy and technical coordination of the technical libraries within the Army, which number something over two hundred. In addition to these regulations for which we have direct responsibility, the next chart will show you that there are other regulations within the structure that we have a relative responsibility for also. This means that there are a number of instances mentioned in these regulations where we play a strong part in fulfilling these requirements. I won't go through what they are. I don't think that's significant. Many of you recognize them.

Incidentally I don't have a prepared presentation. I prefer to speak directly in a lecture format, from slides, and take the reaction of the group. Many of these regulations are very paramount in your concern because they deal with such things as technology transfer, which is 57; or geophysics, which is 38. We are concerned because we have an analysis center application in geophysics. The program in IR&D is 35.

There is one public law that stands out among all others that I am sure you have had expressed to you recently. I don't have a slide of it, but I will make mention of it. 94-282, known as the Kennedy bill. I have a copy of it with me if any of you are interested in it. It was passed May 11, 1976. It's the first mandated statement, in the form of public law, that addresses the need to coordinate technical information. I will just simply make a quote: "to develop and maintain a solid base of science and technology in the U.S. including effective management and dissemination of scientific and technical information... there is the responsibility of the federal government to promote cost effective, reliable and systematic transfer of scientific and technical information to coordinate and unify its own science and technical information systems, and to facilitate the close coupling of institutional scientific research with commercial application of the useful findings of science." That gives us the strongest mandate that exists, to perform scientific and technical information management and, in fact, to merge this management with any of the other disciplines which relate to it. I will get to that in a bit.

The next mandate that I think was touched on in someone else's presentation resulted in a White House Conference on Libraries and Information Services held last November. I was a staff member of that conference. I spent 110 hours in one week, working on that conference. I found it the most rewarding, delightful experience in my professional life. This project then has embraced a number of resolutions, some of

which have direct impact on our activities in library information services within the military departments. Therefore, I would urge each of you, if you have not read this publication, to dig into it. It's available at all libraries. Relate the resolutions in this document to your activity. There has been one White House conference since, in Minneapolis, about a month ago. The resolutions from this work will be forthcoming. You will hear more about that through your normal professional publications.

The last chart I have on the policy making area of my talk has to do with budget. The only thing I wanted to address on this is in my obligation as project manager for information technology for the Army. I have a budget which is embraced by these products. It would take two hours for me to go through these projects. Much of it is not really relevant to this group. I want to break off right in the middle at M728, at information technology. The DA budget monitor is Major Blackwell, who's on the Army Library Council.

Now the information technology (M728) project is essentially a seed money funding project. That is a project in which we entertain requests from the field, and the field can be libraries, laboratories, or any other element of, preferably the Army, but it can be combined Army and other services or Army and DTIC, or in one case, IDA. We needed help to fund the way to get it published, mentioned by the previous speaker, from a piece of the funds from that particular project. I want to speak about that project more, a bit later, so I won't spend any more time on it now.

The next project (8729), symposium and conference, is essentially a youth science activity, intended for the support of youth science interests, so that high school age kids will develop a more than passing interest in science through symposium, conference, high school science fairs; hopefully, they will go into science fields in the future. Not necessarily Army science, but science fields. As you know, all the services partake of science regardless of who generates the science.

The next project is the technology information analysis centers, project M721. Mr. Sauter sort of mentioned nineteen analysis centers in the DoD in total. Seven of those centers are Army sponsored centers and reside within Army laboratories.

The next graph is of the analysis centers. There is the analysis center for the Army Coastal Engineering for the Balboa, primarily concerned with any geologic/geophysical/hydrographic effects of coastal engineering, a very elaborate collection of graphic illustrations of stratigraphy of the ocean shores, and geologic characteristics of the shores, etc. Hydraulic engineering, pavements, soil, soil mechanics, and concrete are all located at Waterways Experiments Station. The world's authorities in the field of soil mechanics reside at the Vicksburg, Mississippi laboratory, and therefore, they have a concentration

of expertise; and these centers have regular publications in the fields, some directly resulting from generated research. Much of it is also a result of research that was done for specific objectives, such as, some city may want to build an entire harbor or redesign a harbor. They have to have model engineering work done under model conditions, using water, sand, sand beds, artificial piers, miniature piers, and modeling of vessels, etc. They do all of this at the Waterways Experiment Station. It is a very impressive tribute to science to see all of this. This results in technical publications, which then become a part of this analysis center.

Going on to the last one, Plastics Technical and Variations Center, called PLASTEC, is located at the Picatinny Arsenal in Dover, New Jersey. It is primarily the center of expertise in plastics for the entire world. They do probe the world literature. We support them to the tune of a quarter million dollars a year out of my budget, and that is only half of their needs. They have a five hundred thousand dollar operation. They get the difference between my two hundred fifty thousand dollar support and what they really need from their patrons, subscriptions to their publications, and support of their work. Subscription doesn't necessarily mean a periodic publication. What it really means is they have a number of patrons who pay a fee to belong to the service. Effectively then, they are at liberty to perform research for those patrons throughout the entire budget year.

Okay, let's move on to functional responsibilities. That is the second segment that they have asked us to address. The functional responsibility we again have to be concerned about is the budget. I have broken this down primarily to discuss a bit of the budget, which I have already mentioned, and the implementation of the regulations which I have mentioned, and the coordination of activities.

We are heavily involved with coordinating technical activity, as an obligation, in the technical information management function. That activity is usually manifested in the laboratories. Now if you can go to Chart 3, I think you will see some of the ways we derive this coordination. I put this slide on primarily because I like to think, in terms of the way we operate, of us in the center column. Virtually every activity can be divided into three segments. The input tells you what to do. The things that tell you what to do are the constraints upon your job, such as your job descriptions, regulations, budget, and other types of descriptives of job functions. Now the left hand column tells us what we are going to do in our job. The center column is our job. That is the job that we have to do. This logic can apply to any position incidently. It's certainly not limited to technical information, or library management. I would urge you to consider it in any activity.

Now, after you do these things, what is the output? Okay, over here the column in the right side of the slide, the output can be

defined in terms of knowledge, confidence and improved cohesion. You certainly improve economics; you improve understanding; you improve processes; you may even be into hardware and improve weaponry and that sort of thing. Some of these are measurable, some are not. Things that are not measurable are things like: are you better off today than you were last year? If you think you are, what does it tell you? Well, one of the things that I would say right off the bat is that we are better off because we now have an interaction of the technical information entity and the library entity. Now if I were asked to quantify that, it probably wouldn't mean very much. I could say, well, we had meetings here; we had so many people attend; we had so many reports generated, and the results of those were such and such activities. It is true that you can quantify some of that but much of it's not necessary to quantify. The reason I mention this is if you don't know if you are better off today than you were six months ago, maybe you aren't looking at a big enough bite. Are you better off than you were two years ago, better yet, four years ago? Some of these things take an awful lot of maturing time for them really to happen. And this group perhaps numbers up to one hundred fifty. How many did it number four years ago? How many eight years ago, etc? So I am urging you to look in terms of bigger bites, if you are looking for improvement.

The next slide has the same sort of logic, but cast in a little different way. The input and processing output is the function I am referring to in my functional responsibility. The input on the left tells me how I get my guidance, to know what to do in this program. The paramount thing I look upon is Congress and I mentioned the Bill 94-282. It's the strongest mandated functional operating public law in existence. It's certainly not the only one. For example, within the Congress, and I am referring to House and Senate, there are over 38 committees that deal in technology. Every one of those committees impinge in some way upon the Army, and therefore, I am concerned with the technical information manifestations of whatever is occurring in those committees. So 38 committees would be what I would track if I could track them. It is very difficult to track congressional activities. Even people like Lee Powers, who is in the business to discuss this issue, find it's virtually impossible to track everything on a regular basis, unless you have full time people working in this area.

There is another bill that is destined to pass within the week, perhaps two weeks. I will mention it now, since it has come up, and that is Senate Bill 1250. How does it relate to this group? This bill is a technology transfer bill. It effectively says that you will have an active program in technology transfer and you will devote one half of one percent of your R&D budget to programs overtly involved in technology transfer. It also says that if you have a budget larger than 20 million dollars for your laboratories you will have a billet devoted to technology transfer. That's going to impinge on everyone in this room because what that will mean is we will, overtly, set up a program

for taking the product of the laboratories which are our sponsors. The technical libraries now will have a program set up to expose the results of the laboratory. I am referring to inventions, patents, technical reports, expertise, etc. Expose that to state and local governments, to the private sector, to non-profit institutes, to educational institutes, etc. You will do this by an organized means; there is an organized means in existence; it is called the Federal Laboratory Consortium.

Of the thirty-five Army laboratories, sixteen of them are actively involved in the technology transfer program. That means they actually have people that attend the consortium semi-annual meetings, the next meeting of which will be held in this very room two weeks from today. The purpose of the meetings is to interact with representatives of the entire federal structure on what is going on in your organization having to do with development of technology which can be transferred to the state and local government and the private sector. The idea is that the day has passed when we are going to let technology diffuse on its own. We are going to encourage technology diffusion and implementation of technology developed with your defense dollars. We are going to encourage that by overt programs discreetly intended to implement these technologies into your daily life. Get a bigger and better bang for the buck from your defense dollar.

If you ask yourselves what is it that gives us a state-of-the-art in a business such as technical information, one of the elements that does give us the state-of-the-art is FFITS reports that have occurred since 1957. And there is a tremendous number of very validated reports that have come up with recommendations of how to manage the information explosion. The interesting thing about these reports is none of the recommendations in any of the 1,416 reports (of which I have only listed about 5 or 6 there) conflicts with or contradicts any of the others. They are all either cohesively supportive, or they are independent recommendations that are not in conflict.

Potentials for change. That is the third category they have asked us to address. I teach a course at the University on a graduate level called "Change in the Management of Technology." The purpose of that course, primarily, is to address the state-of-the-art in many, many technologies. Change is continuous in the management of technology because in many areas the half-life of technology is only about three years.

What that really means is that every three years, at least half of what you are doing is now being done a different way to a certain extent, so what they also mean is roughly every three years you need to be rejuvenated in your knowledge of how you are doing and what you are doing. So for that reason I would urge that you people consider the merit of what is going on today. If you operate on that, three years

from now, that is going to be old hat and we are going to be under completely new ground rules, so to speak.

As far as technology is concerned, I have a lot of curves that demonstrate this in terms of where we are in speed of computer operation, where we are in computer memory devices, where we are in physical size in memory devices, where we are in access, and where we are in interpretation. Did you know, for example, that in the size of a pack of cigarettes, you can have a computer device that can speak a language on its own, of about twelve hundred words? And it can do this in about six languages. Now that is a pretty good translation device. Did you know that the current technology for printing, I am talking about conventional character printing, the current state-of-the-art is thirty thousand lines per minute? Did you know that the current state-of-the-art for forwarding a hardcopy of 8 1/2 x 11 sheet, from one point to any place else on the entire surface of the earth, if they have the equipment, is one-half second? None of us has three technologies in our grasp, but they are in the Laboratory. They have been proven. They are here. They are real. All we really have to do is put some push on the implementation of these technologies to get them. But they are going to affect our business.

My last slide will show some other pretty earth shaking attributes of technology that we must keep apace of in order to realize what it's going to do to our business, because futures is the name of the game. I want to mention, primarily, three major areas. There is an obvious merger of these disciplines occurring. I think it may not have ever been pointed out to you, but this merger is evident if you look at what they include.

Communication science; obviously communications technology has developed tremendously over the past ten to fifteen years. We can go through a lot of statistics demonstrating that, but I wouldn't think that would be any great surprise to you. The point I am trying to make is that these four disciplines are the keys to our current ability to merge the information field with the library field. This is what has produced the information explosion. So if you think your business is library science, I would urge you to also consider that these other three sciences are just as much a part of your business today, whether you like it, or realize it, or not. It's there. It has happened and it's there.

I also want to comment that if you don't think that you are to meddle in the computer field, the information field, or the communications field because somebody else does it, then I would ask the question, did they do it? Did they really? Are they really doing the job you need to have done? If they are not, it's incumbent upon us to move out and do it for them. That is precisely what we are doing. We have several cases where we have had to get exceptions to regulations. When

it's somebody else's responsibility but they are not doing it, therefore we must do it. So you move out and step ahead.

In this potential change area I wanted to emphasize these three things:

- 1) The management of the recognition of significance, I consider a very important attribute. In other words, recognize the significance of change, what is happening today in technology. That will impinge on your business and we need to take that into account and manage it to your perspective. That is what I mean for potential change;
- 2) Self-determination to merge with diverse activity. In other words, take it upon yourself to realize, "Hey, I need to get coupled to those people. I need to interact with those people. I need to learn what they are doing. They need to learn what I am doing. We need to get together and do it on a regular basis;"
- 3) The development of the evidence of the product and its success. In other words, we need to develop evidence of how we are improving the user's lot, so that we can inform our management, so they are an informed hierarchy of control if you like, because they don't know.

So often, they are looking upon us as doing the things the way we did them ten years ago. We are doing a little better now. That is not the case anymore. We are doing them entirely different, and we are doing them a lot better, and we need to educate the management to that effect. Therefore count your successes. When you get into on-line work make sure everyone up the line knows about it, not only the users, but those people that are supporting your work.

The last thing that I wanted to get through here is the factor affecting current and future technology. I mentioned a couple of items earlier that I wanted to expose. What I consider a smatter of this and a smatter of that--off the cuff things. If I really dug into it, I could probably triple this number. I have something here I want to read, because I know it's difficult in the back. On the top, I called that "information explosion" and this top group is information entry functions. Every one of these are technical attributes that have made the entry of information in some sort of a store. It's a very, very simple, very effective, efficient, communicable sort of technique and I would invite any of you to talk about these when we have time together if you like.

The next one is measurement functions. We are into measuring things to such a high degree of precision. I did some research work twenty years ago measuring temperature with four decimal places because three decimal places didn't show the problem. I had to measure to a

fourth decimal place to get the precision required to show the phenomena. That's happening everywhere in the world--the phenomena of precise measurement of all technical parameters is affecting everyone in this room.

The next one is calculating functions. I just threw in a few there so you know what we are talking about. Now many today have a pocket calculator. Well, almost everyone either has one in their family or their acquaintance, and yet if we had applied that same thing twenty years ago how many carried a slide rule? Maybe one tenth or one one hundredth of that number. The reason is not because everyone likes to calculate data, but because it's so easy they can do it, and they do it, and as a result they have a much better data base in their pocket from which they can make decisions.

Articles from intelligence. This is a thinking machine, if you like, transmitting function optical fibers. Did you know that the wire that carries your voice over the telephone, if replaced by an optical fiber, will carry eight thousand voices, where it only carries one today? The difference is only in the material called the optical fiber. It has a tremendous impact on the information domain of our society and on television. What that does for us, it enables us to take an image, an 8 1/2 X 11 page, and put it on a conventional telephone and forward it over a long distance. Now we did that twenty years ago with a device called a picture phone, but no one had one. The reason is because it required a dedicated communications line for the band width required to complete that communication link. Today we can use the conventional telephone and the reason is because we use close scan television, and the only thing you are paying is a four second delay. That is all it's costing.

The last thing I did want to mention, and I guess I have already mentioned, had to do with Senate Bill 1250, the one that has to do with technology transfer; if it does pass all of us are going to be in the technology transfer business. I would invite any of you to discuss any of these issues with me after the discussion or tomorrow or the next day because I would be delighted to try to help you in your program and to enhance the capabilities of the libraries through any of these technologies.

Thank you.

MINI SESSION A

FIGHTING OBSOLESCENCE: CAREER MANAGEMENT FOR THE DoD LIBRARIAN

Discussion Leader:

Walter S. Burgmann  
Director, Air Weather Service Technical Library  
USAFETAC/TS  
Scott AFB, Illinois

The diversification which librarians need to meet the demands of contemporary DoD information management was examined. Pragmatic techniques were emphasized in such areas as generation of new library skills, continuing library education, and mid-career/cross-career management development.

Views on Planning Your Career Future: IRM (Information Resources Management)

Dorothy A. Fisk  
Director, Army Library Management Office  
Washington, D.C.

EIES (Electronic Information Exchange System): Computer Conferencing for Librarians

James Johnson  
Chief, Technical Services Branch  
Air Force, Wright Aeronautical Laboratory  
Wright-Patterson AFB, Ohio

Library/Technical Information Services Survey

Attitudes Toward Change

Dr. Terence Crowley  
Associate Professor  
Division of Library Science  
San Jose State University  
San Jose, California

(Papers not available)



Mini Session A Panel. (l.r.) James Johnson, Dorothy Fisk,  
Terence Crowley, Walter Burgham

MINI SESSION B  
MANAGING INFORMATION RESOURCES

Discussion Leader:

Alice T. Cranor  
Head, Information Services Division  
Naval Intelligence Support Center  
Washington, D.C.

Discussions centered around applied management techniques, such as: the information audit; the information resources management plan; the relationship of management technology to the library or information center; and libraries as bureaucracies. Emphasis was placed on the importance of non-traditional planning and management for the future.

**General Management Approaches to Getting What You Want**

Ruth S. Smith  
Manager, Technical Information Services  
Institute for Defense Analyses  
Arlington, Virginia

**Managing Information from the Perspective of a Small Field Library**

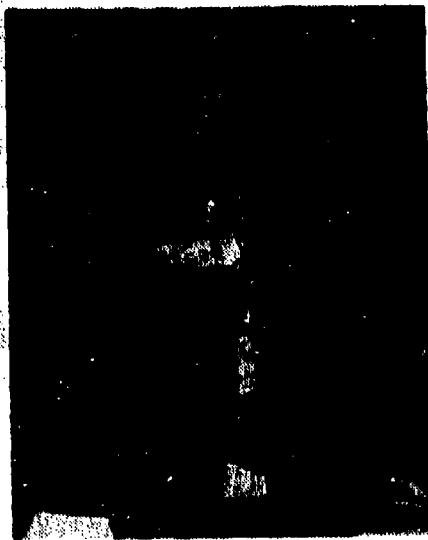
Carolyn I. Alexander  
Chief Librarian, USACDEC  
Technical Information Center  
Fort Ord, California

**Managing Information from the Perspective of a Larger Technical Library**

Brian L. Beauchamp  
Librarian, AFWAL/TST/REPORTS  
Wright-Patterson AFB, Ohio

**Information Audit**

John P. Cummings  
Associate Director, Nimitz Library  
U.S. Naval Academy  
Annapolis, Maryland



Ruth S. Smith



Carolyn I. Alexander



Brian L. Beauchamp



John P. Cummings

HOW TO SURVIVE, SERVE, AND GROW IN LITTLE OUT-OF-THE-WAY LIBRARIES

OR

HOW TO LIVE WELL WHEN RESOURCE PERSONNEL AT DTIC, THE  
PENTAGON, ETC., ARE ONLY DISTANT VOICES ON THE AUTOVON

C.I. Alexander

About 500 BC, the Chinese General Sun Tzu wrote the maxim, "Know your enemy ... Know yourself." Eugene Bonk, who is the Manager of Market Development for Motorola Communications and Electronics, and an ex-Air Force Intelligence Officer, has modified this to "Know your customer ... Know your product." He has expressed the firm belief that in marketing and military situations, knowledge and information are absolutely indispensable. I think we should modify that further to "Know your customer ... Know your resources ... Know yourself."

Let's look at some of our concepts about our customers, our resources, and ourselves and see if we can reanalyze them. Initially, I'll admit that this is a fairly broad topic. Broad in part, because our out-of-the-way libraries are frequently smaller. The staff, more limited in number, covers many work areas, some of which are terribly specialized. Fortunately, most DoD librarians rotate, and are aware of the difficulties and the joys of isolated locations and the informational oases that our resources provide.

Whatever your kind of library or information center, I'd like you to take what I say and adapt it so it's meaningful to you and your programs. I'm really here to get you all to do some creative thinking.

Robert Landau of the Science Information Association has recently written that no matter what the size of the library, an information resources management plan can be constructed by performing these activities. First, an analysis of goals and objectives is needed. Secondly, an information requirements analysis must be performed. Then, time phased plans for meeting those requirements are set up according to their priority. Calculations must then be made of the total cost of the information, its acquisition and maintenance. Finally, he says, we must consider alternatives in satisfying informational needs.

In establishing a basic information management function, Landau recommends implementation of these steps. First, we must identify all the information resources of the organization, not just those immediately at hand. Then we must develop organization-wide procedures, regulations, and policies. Thirdly, we must initiate procedures to help the organization adjust to changes. After setting priorities and requirements, we must establish standards and guidelines for use, measurement, definition and disposition of information. Considerable effort must be made to provide a coordinated developmental plan for information resources. Finally, he says we must create the necessary

training, educational and career progression opportunities for information specialists.

I read Mr. Landau's fine paper after I had written mine. My ideas are similar but my approach is more simply categorized into four areas given in the handout. I'll expand those areas with an eye to survival and growth in out-in-the-field facilities.

- 1) Identify who we are and what we have
- 2) Identify our responsibilities
  - to our customers
  - to other resource personnel
  - to ourselves
- 3) Identify our material and people resources
- 4) Identify our communication capability

So let's ask ourselves some questions:

What do you have in your collection? What types of materials are to be found there? What specific subjects are covered? What specific books/documents/information are used the most? Why?

Where are you going? What's the personality of your post/base/command? What's in the Five Year test plan? Ten Year Construction program? Are changes coming? Are you prepared for them? Preparation for change may well mean personal adaptation as well as reorientation of the collection. You or your staff may need training, special briefings, or even enlargement or reduction in the size of your staff. You must anticipate and plan for change.

Where have you been? As librarians, it's not unusual for us to place considerable significance on the book as the keeper of history. That rather romantic ideal is in need of new and changed emphasis for many of us. In a research and testing organization like mine, it is critical that we do not "re-invent the wheel" every few years. And it's important, not just to keep Jack Anderson off our backs, but also to provide and plan for a meaningful testing and training program that in one way or another affects (or will) almost every person in the American Army. We find that analysts sometimes not only want to look back at what we've done, they want to resort through the data and findings to look for new applications and re-correlate conclusions based on new information. Our project officers are often interested in how other tests were designed, so that ours can be improved.

Which leads us to the next question. Who is using you? Do you really know? Do you know why your library is being used or, conversely, why it is not being used? I won't stray off to a discussion of publicity or public relations programs, but I'd like you to remember

that old saying, "You can lead a horse to water, but you can't make him drink..." is pretty well true. What you have to do is figure out how to make him thirsty. Your libraries and your information have virtually no value, if someone isn't thirsty for them.

Walter Carlson, who is now in the Corporate Marketing Department of IBM, has declared that "information is not a manageable resource". His reasoning is simply that information and data by themselves are absolutely nothing. And all the inventorying and talking about them will not give them any inherent value. Trying to con executives or military personnel into believing that these are manageable materials like others they manage is counter-productive. Carlson feels that information "has value only when it is used in some decision process, whether personal, institutional or national". His lucid guidance is "information conserves other resources through better decisions". If our information is going to help people make better decisions, we've got to stop and think over very carefully how we and our information could be used better. In that process, we can help ourselves learn to make better decisions.

Secondly, we have to identify our responsibilities. Whom do we serve? Which people need us? Do they know they need us? You know, it's awfully nice to be needed, so we're going to have to make sure they know that they need us. If you're trying to talk to the horse and tell him how neat it is to be thirsty, he may or may not get the idea. If you check to see whether he has a salt block in his corral, you may finally be on the right track. What are your potential customers working on, struggling with, planning for, or what might they want to work on tomorrow, or next month, or next year? You don't have to be clairvoyant, just smart. Listen and ask a lot of questions. It is definitely your job to know what they are doing and are going to need. Another responsibility is to give the customer what he wants and needs, and those are not always the same thing.

We have responsibilities to our coworkers, to keep them informed, ask them for ideas, ask for their help, and help them, as well as ourselves get needed information training. We also need to participate in professional organizations with them. It seems that I should not have to say that when we are requesting assistance or interlibrary loans from others, we need to knock ourselves out to present full, clear information, explaining what we've done, where we've looked, what we've verified and what is questionable information. While I should not have to remind most of you, I know there are some who still do not always give fundamental professional courtesies. As cooperative relationships become more and more important, we need to be as precise, thorough, and cordial as we can possibly be.

We also have responsibilities to our families and friends. We should do the job right, so we don't have to go home and mope or talk about it all evening.

We have a big responsibility to ourselves to keep growing and finding enjoyment and challenge in our work. Librarians usually are not by nature self-serving. Our profession tends to attract people who want to serve others, but that attitude can be limiting. We have got to be sure that our supervisors and those in the management structures around us understand our solid contribution to our organizations, and our ability to manage our resources. If we are not so recognized, we will continue to be battered around in arenas for funds, positions, and facilities.

As employees of the federal government, we have a right to use our organizations and commands to further our own goals and ambitions. Each time we find a new challenge, a new assignment, or an opportunity to learn from our organization or professional society, we must take it. We must make opportunities if none appear to exist. We must participate in training ourselves and others. As an idea, consider setting up seminars or work groups to discuss your customers' specialized professional needs with them. Why not make an introductory orientation to the library mandatory for new personnel? Why not try a fresh new brochure about your services and distribute it at the commissaries, the offices, and the motor pools, and not just leave it lying on the circulation desk. Urge your good patrons to tell your supervisor and others in the power structure, what a good job you do and how your resources have helped them.

Stop every couple of days and ask yourself, "What am I going to do today to promote my image and my library's role?" "How can I be more useful?" "How can I learn more about my clients and my library?" "What am I going to do today for my own professional and personal growth?"

We also have a responsibility to our organization and our library or center as an institution. We must meet externally set regulations and sometimes set standards for our institution (i.e., obey copyright laws, conserve funds, etc.). Finally, we have some physical responsibilities to safeguard materials, while making them as available as possible. Some of us must also meet security requirements to protect classified material. Most of us are keenly aware of those responsibilities.

To identify your resources, you could ask yourselves:

Who and what are my resources? What information are my patrons likely to need? Can I find it in my library? If not, how and where will I get it? Should I get a copy to retain or just borrow? These are routine decisions many of you make each day. They are also fundamental

to your service and need to be viewed in the large informational requirement picture.

If any of you are reference or interlibrary loan specialists, you know the next questions are: What resources are nearby? And, how soon does the patron need it? Then you comb your minds and directories to insure you've thought of all the resources, companies, information systems, or commercial services you should try. You probably keep a small file on your desk of these special collections, locations, and contact persons. Those files are kept partly for referral purposes. While our center has limited, intense spheres of interest, we frequently field questions about materials and subjects that are outside but related to work our command performs. Rather than tell some sergeant that we don't keep supply documents and publications, we can usually tell him precisely where he or she should go next.

Other professionals (not just librarians) provide an important source of information about other resources. Like most of you, I take notes when someone mentions good special collections they've used at other places. At professional meetings, we all meet specialists who are delighted to tell us about their unique resources. The time spent talking about their collections and services usually helps form a bond that promotes improved interlibrary cooperation.

Directories are a very fine source of information about resources near and sometimes, far away. The directory we use a great deal at CDEC is published by the Cooperative Information Network. I'll come back shortly to tell you more about this excellent resource.

In analyzing our final concept, we need to understand how we communicate and learn to improve our communication capabilities. The way you talk, dress, and act are all forms of communication. If you sound and look like a sharp individual, your customers will have confidence in coming to you. Of course, you need to add some of that ever effective, old fashioned friendliness. A librarian needs to exhibit a very open and reasonably accepting mind and attitude. We learn a lot that way and we are more receptive to people and their need for information.

One of the practical tools of our trade is the telephone. The first quality you need is persistence. I've seen many fellow government employees try to get the autovon line and give up after two or three attempts by saying, "Oh well, I'll just have to try later". Instead, you can read or sign paperwork while you dial "8". Usually in less than two minutes you will get a line. We have to live with the system and still get results quickly. We need to be efficient, with telephone numbers at hand. We need to be able to explain concisely what we want, how soon, and what we've done so far. This applies not only to reference work; it extends to administrative calls too.

We also need to project a good personality. Generally, a cheery, friendly tone will do wonders for your reception from the person at the other end. Sometimes, a very brisk businesslike voice is required, but normally a pleasant, efficient manner gets you much further.

One of our new tools is on-line access to central computer banks via our remote terminals. These machines don't really care how friendly you are. They are precise, unforgiving little gremlins that inhabit odd corners of our offices, but they can be such interesting, rewarding little answer-monsters, that I have grown fond of ours. It constantly challenges me to think logically, not to forget details, and to expand my own thinking methodology. If we learn the systems, we can find valuable supplemental resources for our libraries and centers.

Most librarians are pretty good at the last characteristic I want to describe. You know, if our business is information and people, there is no hiding from either one. We need to be seen, but in a positive light. We need to make ourselves known, and if not well liked, at least respected. We want to project that we are bright, friendly, knowledgeable, and helpful. I don't mean that we just stand around grinning in our entry ways. There are so many opportunities for good exposure. I go to almost every officers' call that my command holds. I attend the hails and farewells. I participate actively in many command programs, attend promotion ceremonies, and work on four or five committees (e.g., training and civilian awards). Not everyone in CDEC likes me, but almost everyone knows me. Enough of them seem to respect me that I'm able to be an effective manager and I couldn't do that without a helpful, cooperative supervisor, budget officer, civilian personnel officer, etc. In our little out-of-the-way places, there are so many more opportunities to work closely with these people and earn their trust. Many of the things we need to accomplish are facilitated by our one-to-one contacts. We can set up programs, fund them and change them, with a minimum of harrassment. Meanwhile, most of the folks back in Washington and in the various other headquarters struggle with documentation of every small procedural change, not to mention implementation of major programs. That is just one of the blessings of our smaller out-back libraries.

I want to go back and tell you briefly about the Cooperative Information Network (CIN). It was founded with a federal grant around 1975. The staff consists of a full time coordinator, a nearly full time reference librarian at Stanford, and a clerk. It is guided by a board of directors elected from the different types of libraries in the areas served, which are San Mateo, Santa Clara, Santa Cruz, and Monterey counties. CIN set up reference and ILL agreements with local libraries and library cooperatives, like the Monterey Bay Area Cooperative (MOBAC). They placed TWX connections in key libraries for reference and retrieval questions. They publish a free monthly newsletter, various free promotional materials for distribution in the libraries, and a free directory that includes a union list of newspapers, a listing of all participating libraries, their hours, librarian, CIN contact

person, telephone numbers, holdings, and specialities. The directory also includes a subject index to the libraries' specialities, and a manual.

The CIN newsletter updates the directory and tells us about programs and classes of interest to librarians and technicians, offered by UC Davis, UC Santa Cruz, the Sacramento Library System and others. It tells us who has materials to give away or is in need of certain issues of periodicals. It gives full information on library vacancies in the area, and brings us up to date on happenings in CIN and the California Library Services Board (CLSB). CIN has performed a number of special studies, e.g., establishing and indexing a resource materials collection for staff development, and offers three to five special one day training conferences each year. CIN polls librarians to find out what they need to know, hires experts, and consistently sees capacity-plus audiences for their sessions. I could continue for some time about their accomplishments, but I've made copies of one of their handouts available for you in the back. This is one of their biennial reports if you'd like to see a few more details about their program.

Their reference assistance program is of considerable value. One of our more difficult problems concerned an environmental impact survey that required all manner of information and statistics on local income, population, etc. The CIN/MOBAC office in Salinas worked with the chambers of commerce, the census bureau and area libraries, locating a number of local resources so that we were able to answer the questions. We do not use their reference services heavily, but when we have required specialized information for planning or public affairs work, they have proved to be a most valuable ally. Other agencies have prepared newsletters, directories, and started networks, but none, to my knowledge, as efficiently and effectively as CIN has for medium and small-sized libraries.

To wrap this up, let's say that in our out-of-the-way libraries we probably have, overall, a less frustrating challenge than some of our colleagues. We can use some help, however. We need to continue to be invited to participate in DoD, Department of Army, Department of Navy, and Department of Air Force level meetings and training programs. We especially want technical state-of-the-art updating. We miss out sometimes, because we don't hear about things that are being changed or are evolving. Sometimes, we are asked for ideas and opinions. Sometimes, we are not. Much of the time, we feel our input is virtually ignored anyway. That may not be true, but it is frequently our perception. It does not seem that very much respect for or interest in us is often evidenced by our colleagues in the East.

Most of us in the field are interested in what's going on. We are as concerned about regulations, career programs, networks, and legislation as anyone in Washington or in a large library. We need help, especially information from our headquarters or we will be left behind.

In many cases, we need on-line access to OCLC, DTIC, and other data bases, to improve our reference capability. Currently, the TRALINET staff is working to advance our cause within the TRADOC community. While we're talking about what we'd like to have, many libraries could make effective use of an FTS line and save the time required to obtain and administer control numbers. We could use some programs and resource lists similar to those the Cooperative Information Network produced.

Finally, let's look at ourselves again. For our part, we need to fight duplication of effort. Our staff time is too costly to waste. We must develop and support cooperative efforts to improve reference and administrative services. That support includes positive attitudes and contributions. We must learn to generate alternative solutions to problems.

Most of us are motivated leaders who need to know more about decision making, and how to improve our decisions and communications. We need to learn to listen, detect errors in our thinking, and develop contingency plans. If all that seems challenging, it's part of the reason we accept jobs in these little out-of-the-way places. We aren't necessarily hiding from headquarters' jobs or suffering from the big duck-on-the-little-pond syndrome. We're excited about jobs where we are directly challenged, and through our growing and application of our improved skills and personalities, we can produce fine information centers and happy customers.

## INFORMATION RESOURCES MANAGEMENT OF A LARGE INFORMATION CENTER

Brian L. Beauchamp

The Wright-Patterson AFWAL Technical Information Center serves a community of approximately 8,900 scientists and engineers. The R&D effort spans the complete spectrum of scientific technology. The demands are varied, specific, and most always include a deadline. With what would be considered a very conservative number of staff members, the Center is faced with an awesome task. How can the rapidly increasing needs of a large research community be met by a small staff, when those needs are as varied as science itself?

The simple answer: Information Resources Management (IRM). But what is IRM, and is the solution really a final solution?

In short, IRM is an attempt to recognize the importance of applying management science to the problems of information. Shortly after the initial impact of the industrial revolution, the progressive thinkers saw the need to manage the vast and varied processes and procedures inherent in the manufacturing process. When these scientific management practices had been developed, tested, and applied, the manufacturing industries experienced astounding increases in production. Currently these forward thinkers view the next great arena for applying these theories and practices to be that of "information".

But what exactly is "information", and what forms does it appear in? I think that we can safely state that information is data that is processed in some manner, and that after processing, this data has value. Therefore, all information has value; data, on the other hand, in-and-of-itself does not have value. It should be pointed out that information can take any number of forms: charts, graphs, words, numbers, texts, pictures, audio and the like, depending on the needs of the end user. Thus, in order to provide information, we as information specialists must provide data that is valuable, timely, and in a mode that is readily understandable and usable.

Sometimes, the relatively simplistic and obvious ideas of the previous paragraph are forgotten in our rush to provide "information" to our users. We can hand an impressive looking computer printout to a patron, believing that we have solved his information need when in fact, we have added to his data overflow problems. This type problem is going to be of increasing importance in the future due to the marvelous advances in technology that the information sciences are undergoing. It will be an easy mistake to make, and one that will go unknown unless the user voices his dissatisfaction.

But the pressing question still remains, can we indeed solve or reduce these types of problems? I believe so. However, in order to do

so, we must merge management science with technology. We must exploit the future in order to manage the present problems in information handling.

In order to deal effectively with the myriad of problems now plaguing the information world, we need a short outline to serve as a basis for analyzing and simplifying these difficulties.

This guideline should be brief and simple. There is no need to add further to the complexity of an already baffling situation. Therefore, I propose that information managers should be concerned with three main categories: planning, organizational structure, and the future. All the difficulties currently being experienced within the information field can be clarified when interpreted through these three categories.

Even the simplest processes and procedures are more efficient when they have been effectively planned. The manufacturing industry is an obvious example of this tenet. We must subject the processes of information to effective management science techniques.

The first step is to take a long hard look at the facility itself. What exactly are the goals and missions of the facility? Are these goals being met? If not, why not? Has the mission of the library information center changed recently? If so, why? Who are the users of the facility, and what precisely are their needs, demands, etc? In short, a lot of basic questions should be asked and, in turn, answered satisfactorily prior to any in-depth planning issues.

A very successful technique for objectively analyzing an information system has been the Information Audit. The Information Audit is designed to provide an objective review of the manner in which information is provided. It attempts to determine the efficiency of the process. However, one must not only be concerned with the "how", but also with the "what". We will not be judged as being successful if we merely provide some data as effectively as possible. The information must have value to the end user. Why expend time, energy and resources in order to supply information that is not needed? The information glut does not need to be added to. Briefly stated, the Information Audit is an in-depth analysis of what precisely is happening within the information process.

Another valuable tool to the planning process is the Task Force. This technique can be used throughout the ongoing planning phase. It can be applied to the sometimes relatively simple task of determining the precise needs and demands of the users; it finds out what services are needed, and, in turn, what present services are outdated. The task force is a technique that is no stranger to the military environment.

The task force can be a very successful way to effectively cross the boundaries of the various departments within the information center. If a balancing of the factions involved can be achieved, valuable objective suggestions can be obtained. Oftentimes task forcing tends to draw departments closer together and increase enthusiasm. Task forces or committees can be created and dissolved quickly without undue administrative procedures.

Consultants can also be a means of clarifying the direction that the facility should pursue. Oftentimes, we are too close to the problems to enable a completely objective approach. Monies spent in this phase can alleviate costly problems down the road.

Once the needs are established, one must determine the most effective means of achieving those needs. This, of course, necessitates a close look at present personnel along with what advanced technology has to offer. This marrying technology to the present make up of the staff is a critical step in managing information resources. George Grove, regional director of telecommunications for GSA in Atlanta, believes that "the real challenge in the 1980's will not be how efficiently managers use new mechanical and computer marvels, but how well they manage the organizational and human implications involved." (Grove, George, "Information Management in the Office of the Future", Management Review, Vol. 68 (12): 47-50).

This brings us to the second stage, that of organizational structure. The technology today is undergoing a merging or interfacing process. There are no longer clear, well defined boundaries between the disciplines. The organizational structure should allow for this situation. How can we organize a facility, and, therefore, the lines of communication/command to expedite the most efficient use of the various technologies and departments? The ideas expressed in the planning stage can lend some stabilizing influence on this process. The organizational framework will in large part depend on what is hoped to be accomplished by the facility.

It will be very difficult to achieve this information center of the future with the organization of the past. Traditionally we have established complete and separate departments around these new technological advancements--Reprographic, Telecommunications, Word Processing, Data Processing, etc. With the interfacing of these technologies, this system of organization has become outmoded. We must allow for the interfacing of these technologies and adopt an integrated approach. Build the new structure around the concerns of today - not the outdated ones of the past.

All this tends to cause great uneasiness, since systems that cut across boundaries tend to change jobs and roles that various employees currently hold. Change is generally viewed with a fair amount of apprehension. Thus, due to the present state of technology, the human

management factor becomes of increasing concern. Workers' fears and anxieties must be dealt with in a direct and open manner. It takes time for people to cope with change within their working environment. However, automation can actually lead to real job enrichment. Most workers have been able to broaden their jobs by being relieved of the mundane and routine functions. With proper management these changes can be made to be seen as an actual boon to the staff members.

What does the future hold for IRM? How does one successfully exploit the future? Obviously, Information Resources and the advancement in computer technology are closely linked. One must stay abreast of the new innovations in information technology and anticipate the trends it will follow.

Furthermore, one must be constantly aware of the changing environment with the R&D community. What will the information demands be in the next ten years? Will they demand three color display graphics on their remote terminals, or will satellite transmissions be the norm? The advances in technology must be exploited in order to satisfactorily meet the needs of the users. Anticipation and intuition will play an increasingly important role in the fluid future state of Information Resources Management. We have a great deal to learn, and a great amount to unlearn.

## INFORMATION AUDIT

John P. Cummings  
U.S. Naval Academy Library

I have been asked to talk to you today about an information management tool called the "Information Audit." The Information Audit was the subject of an article in the May/June 1979 issue of The Information Manager. The term Information Audit is a registered service mark of Arthur D. Little, Inc.

As the term implies, the Information Audit is a tool to define the information needs of a company or other organization, and determine the resources and techniques which will best fill the need for such information.

First, let's review the steps in an Information Audit briefly.

- (1) Define Present System. The company's present system of supplying information to its employees is analyzed. A profile is prepared for each of the information resources within the company.
- (2) Goals. Define present corporate goals and determine if the present system serves these goals.
- (3) Services. Analyze the way present services keep employees informed
  - maintain a collection
  - short term research or reference
  - in depth research
  - initiate selection and routing of pertinent information
  - brief R&D staff on technical advances of interest to company's program.
- (4) Organizational Location. Determine where the information center fits into the corporate organization.
- (5) Cost. Do users pay for services from departmental budgets, or is Information service covered in company overhead?
- (6) User Evaluation. Determine what user feedback is needed and develop tools to get such feedback.
- (7) Evaluate Qualifications of Staff. Does information center staff have the managerial and technical skills necessary for success?

(8) Audit Report. Analyze the results of the above studies and define areas needing change.

That's it. Not much new to it. In fact, it sounds like the answer to a final exam question in a library management course. So why did Arthur D. Little put so much effort into developing the Information Audit approach? I believe that it was because they saw corporations developing information centers with capabilities far beyond their institution's needs, or else ignoring the information center and allowing it to fail to meet its purpose.

The developers of this technique do not address librarians or managers of information centers with their proposals, but consider it to be a corporate problem to manage the information resources available in a way that helps achieve corporate goals and is cost effective. They saw that corporations were failing to devote the necessary effort to ensuring that the Information Center achieved its purpose for existence. They saw that the Information Center manager was usually hired into a pre-existing structure and told to run it in a way that produced no complaints.

The Information Audit seems to me to have excellent chances for success, if implemented. It would be initiated by a corporation contracting with the consultants to make the review. The results would be presented to top management, who would presumably already be aware they had a problem and might be expected to act on the consultant's conclusions.

My understanding is that Arthur D. Little has not had much success with implementing this technique for corporations because the corporations either have a good system already, or, if they don't, aren't aware of it.

The value of this Information Audit approach to us as military librarians is that it presents a basic approach which will remind us to continually re-evaluate how well our own information center is succeeding in achieving the goals it was established to support.

#### REFERENCES

Quinn, Anne V., The Information Audit--A New Tool for the Information Manager. Information Manager. May/June 1979: 18-19.

Quinn, Anne V. The Information Audit-Is Anyone Listening? Paper presented at the National Information Conference and Exposition (NICE-IV), May 30, 1980.

## MANAGING INFORMATION RESOURCES

Ruth S. Smith

As managers of information resources, our bigger challenge today is finding a way to deal successfully with our own management, our own staff, and the users of the services we provide, especially when we want to adopt new technologies and techniques for the improvement of services. Over the years, I have found that success often lies in being aware of the setting in which you operate, knowing what you want to accomplish (including why and how), being able to handle constraints with finesse, and using a variety of approaches to achieve the results you seek.

Let me tell you a little about my setting--the Institute for Defense Analyses (IDA)--where I manage Technical Information Services. IDA is a Federal Contract Research Center (FCRC). Under contract, we do studies and analyses on important national security and public welfare matters of interest to the U.S. Government. Most of our work is done for the Department of Defense, primarily the Office of the Secretary of Defense and the Joint Chiefs of Staff.

IDA's research staff consists of some two hundred scientists, social scientists and other scholars, experts in their fields. About these experts, Fred Koether, formerly with the Defense Advanced Research Projects Agency (DARPA), once said, "They act as sponges and soak up all the information given them, then think about the problems and try to come up with solutions". The end product of IDA's effort usually is another report, study or paper. So, ours is an information-oriented organization.

The role of our Technical Information Services is to provide needed information support of the various studies and analyses. Most studies have a well-defined work schedule with a specific reporting date. The initial gathering of informational materials is critical to the task. The promptness with which it is provided impacts on the work schedule.

It is not surprising to find, then, that the Technical Information Services activity operates with a staff of twenty-six. Of these, seven are professional librarians and information specialists, thirteen are technicians, and six are clerks. This staff is responsible for the library and information services, the central document control system, distribution of internal publications, and the mail room. We do a lot of handling of papers and documents--generated in-house or coming into the system, circulating in-house, and finally going out of the system.

Ours is a current, rather than an archival, collection. The unused material is continually being weeded to make room for the new. At any one time the collection remains at approximately thirty thousand

books and other open literature materials, six hundred current journal titles, and seventy five thousand technical reports (most of which are security classified). Because of the need to gather new information for upcoming and current tasks, we rely heavily on the on-line search services, especially our on-line connection to the Defense RDT&E On-line System (DROLS) at the Defense Technical Information Center (DTIC). Because of the need to acquire material quickly, we continually are looking for ways to improve access to and delivery of these information resources.

With the increasing availability of new techniques and technologies, I sometimes find myself like a child in a candy store--more often than not on the outside of the glass looking in. Management does not always see the exciting possibilities for improvements that I do. When they do, they often have constraints of their own, such as funding ceilings or the need for yet another level of management approval.

Over many years of "pursuing" objectives, I have developed a number of approaches to get around constraints, to obtain management approval or funding, and to achieve objectives for improvements in services. I would like to share some of these with you today. I describe them as follows:

- Traditional Approach
- Test by Trial Approach
- Alternative Approach
- Foot in the Door Approach
- Resource Sharing Approach
- Funded Task Approach

#### Traditional Approach

The straight forward approach is often the best. I try that first. For example, after we read an article in Special Libraries (1) we wanted a Magnetic Tape>Selectric Typewriter (MT/ST) for the production of catalog cards. It sounded great. The machine had two tapes, one of which was a program tape. You could type just the main entry with tracings for a number of documents, set the machine, and unattended, it would print out all the added entries. For each hour of manned operation, the machine would work two hours by itself.

I discussed the potential of this machine with our cataloging staff and they were enthusiastic. So, I wrote a proposal outlining the projected cost/benefits of a lease/purchase agreement and forwarded it to my boss. In a few days I followed up and went to see him. That gave me the opportunity to discuss it further (with enthusiasm). Within a week he approved the lease/purchase agreement and we ordered the equipment.

After the equipment arrived, there were the usual problems of staff training, down time, finding just the right weight continuous card stock, and so forth, but we were prepared for these. What we were not prepared for was the fact that most of the local IBM maintenance crew were unfamiliar with the special "library option" feature which enabled the machine to reproduce catalog cards. This finally was resolved with some help from their office in Texas. We now own the machine and use it to produce cards for both books and technical reports--two different formats.

#### Test By Trial Approach

In the early days of commercial on-line searching, we wanted desparately to have a terminal with which to experiment. Management was reluctant to add that amount to the budget for equipment rental. It was difficult to prove that we needed it.

One of the divisions, however, had three terminals for time sharing computational use. One was a portable. We made arrangements with the operator of the equipment to let us borrow the portable terminal when it was not in use. Over a period of six months, we collected enough statistics to demonstrate its worth. We had facts to back up our request. Based on this test by trial, we obtained the necessary approval to lease a portable terminal of our own. We have had it ever since.

#### Alternatives Approach

When it comes to purchasing or leasing larger pieces of equipment, there seems to be only one channel through which it can be obtained. Yet, we found there are alternatives--if you look for them.

From the time we first heard about the Defense ROT&E On-line System (DROLS) at DTIC, we wanted to have our own classified terminal for online searching. To generate interest, we set up a meeting for the research staff, and invited someone from DTIC (then DDC) to give them a briefing. The response of the staff was heartening. Based on this, we prepared a request for installation of a terminal.

Our management did not turn down the request, they just held it. Costs were high. Procurement of the equipment required special contractor approval. Over a period of time the costs did come down, but we never seemed to be able to get the needed approval. We finally decided to try an alternative approach.

The government can and does furnish equipment to contractors if it is needed to support contract work. With that knowledge, we approached one of our major contractors, DARPA, and asked if they might be willing to furnish a terminal to support their existing contract with IDA. They said it was possible, but would need written justification. We

prepared a proposal to DARPA outlining the cost/benefits. DARPA furnished the equipment and our own management willingly supported the installation. We still have this classified remote terminal site.

#### Foot in the Door Approach

We used this approach to begin the process of automating the central document control system. In spite of the fact that we have a CDC 6400 computer in-house, we were not allowed to use it. Therefore, we proposed a punched card application for our document control records and this was approved. Something is always better than nothing. It lets you get your foot in the door.

To fill an existing staff vacancy we hired a Coordinator of Automation. His job was to conduct a systems analysis, smooth out the workflow, design the system, and assist in the implementation--working with staff members and their supervisors.

A series of internal staff meetings was held to obtain staff cooperation and participation in the planning. The existing staff contained a number of old timers, such as retired military chiefs and document control specialists. As the planning progressed, there was a growing resistance to moving desks and work stations, changing procedures, and learning new routines. Little things, such as lighting overhead and the facing of desks, became big concerns, and there was a general reluctance to change "the way we always have done it."

It was not easy to change a negative attitude into a positive one, but we gradually achieved this by encouraging suggestions based on their experience. We presented choices and let them choose. We explained each procedure carefully in context of the entire system. In short, we tried to show how the new system would benefit them. It promised to be less work. This helped.

Once into the conversion process of keypunching the new cards to replace old records, other benefits became apparent. The cards themselves were neater and easier to file. Inventory lists could be printed automatically, as well as the certificates of destruction, and a small amount of computer time was authorized to assist in this. Soon, like the painting of Tom Sawyer's fence, the ability to operate the keypunch machine became a status symbol.

Unexpected problems emerged next from the research staff. In spite of advance preparation, there were complaints. At the start, we assembled an Ad Hoc Committee of research staff representatives to determine the acceptability of the proposed system to the research staff. We also circulated a staff notice well in advance to announce the new system and explain the conversion process. The full impact of what it actually meant for each individual staff member was not immediately apparent.

Each staff member had to sign new document receipts on punched cards for all the classified documents he held. This turned out to be a long and time consuming process. Further, one of the choices made by the Ad Hoc Committee was that the corporate author could be dropped from the signature receipt card in order to include more of the title, and this signature receipt card would be used to print out individual inventory lists. So, naturally, one of the complaints was that the corporate authors were missing on the inventory lists.

We took advantage of this staff pressure to expand the system. With a little programming support from the Computer Group, we were able to print out inventory lists with corporate authors, even though the corporate authors did not appear on the signature cards. This caused us to overspend our budget, but we took the chance. We reported it after the fact and, somehow, got away with it. Justification was that it was done in response to persistent research staff requests and the costs of running individual lists could be charged back to the divisions.

Each year since then we have gradually made other improvements in the system. It now has the capability of counting and listing documents in a variety of ways; such as by date of arrival, by source, by contract task, etc. Someday we still hope to have an on-line computerized control system. Thus, big projects can be developed from the "foot in the door" approach.

#### Resource Sharing Approach

An approach filled with great potential is resource sharing. An example is the Shared Bibliographic Input Experiment (SBIE) with DTIC. This was based in part on the successful shared cataloging experiment conducted by the library community with OCLC.

Three years ago, DTIC and six remote on-line terminal sites set out to test the feasibility of shared cataloging of technical reports among DoD agencies and their contractors, using the Defense RDT&E On-line System (DROLS) and the Remote Terminal Input System (RTIS) at DTIC.

A block of AD-E numbers was assigned each of the remote sites. These numbers were appended to new records input by the sites. When DTIC received and processed the reports, the AD-E numbers were superimposed by DTIC's AD-A, -B or -C numbers. Quality of input was controlled by edit-audit printouts of the records input by the remote sites, until the sites gained adequate experience in creating valid data. In addition, each site had a holdings symbol which could be appended to any record in the data base or added as part of a new entry. All these records were searchable on-line.

At first, we input records for our own documents, beginning with those scheduled to be deposited at DTIC. Then, we went back to our own older documents and selectively input records for those. In the third phase, we input records for our own documents which were not going to DTIC and included the name of the office responsible for distribution release. These first three phases dealt with our own publications. The fourth and final phase included documents originated by someone else, but held in our collection. We searched the file on-line. If the bibliographic record was already in the DTIC file, we merely appended our own holding symbol. If the record was not in the DTIC file, we input original cataloging along with information on the office responsible for distribution release (if known and if other than the corporate source), and our holdings symbol, of course.

A number of duplicate records emerged because the records input were not immediately available on-line for duplicate checking. Programming changes at DTIC promise to make immediate on-line duplicate checking a reality by early next year.

The long range goals of this experiment are based on the creation of a Defense On-line Catalog. Such a catalog will take advantage of source cataloging, reduce the duplicate effort of many sites recataloging the same documents, and speed up the announcement of Defense publications. At the same time it will provide a clearinghouse of acquisition information for those many documents not deposited at DTIC.

As a participating site, we hope eventually to be able to search the majority of our own holdings on-line at DTIC. With a completely compatible local system to handle those closely controlled files that cannot be sent to DTIC, all our holdings will be available for searching on-line. In other words, we hope to be able to phase out maintenance of the card catalog and to speed up the acquisition of information and documents. When this is achieved, we will have a more cost-effective operation and will be able to serve our own user community better.

#### Funded Task Approach

Like the Traditional Approach, the Funded Task Approach is fairly straightforward. Yet, this is an approach that often is overlooked.

Many agencies and companies have a central research fund which is available to explore novel ideas, develop new or improved methodology, or cultivate new capabilities of benefit to the organization.

We used this approach to develop the first edition of the "How To Get It" guide.(2) The original idea for this guide came from the Document Procurement Subcommittee of the Committee on Information Hangups. Since the Committee had no funds, we at IDA submitted a proposal to our own management asking that the library be funded to compile such a

directory. This directory would identify sources and channels for acquisition of types of government-published or government-sponsored documents of interest to the Defense community. IDA did provide the funds and the guide was published in the Fall of 1973. It was well received by the Defense community and eventually appeared on the list of best sellers at the National Technical Information Services (NTIS). Now, seven years after it first came out, we still receive an average of five inquiries a month about when a revised edition might be expected.

DTIC, with matching funds from the Army and the Navy, asked IDA to prepare the revision "to serve the entire DoD." We signed a contract in February and began updating the entries and looking for new material. We asked for suggestions from the Committee on Information Hangups. Hugh Sauter, Administrator of DTIC, wrote to the individuals who attended the previous two Military Librarians Workshops asking for input. A considerable amount of material was received from these sources. By way of saying thank you and to launch the new edition, we have brought along copies to be distributed to all this year's workshop participants.(3) I hope you like it.

#### Conclusion

In summary, I firmly believe that the approach you use in managing information resources often determines whether or not you succeed. My advice is (a) be understanding of your setting, (b) be prepared for opportunities, (c) be flexible and willing to adapt, and (d) be persistent.

Be understanding of your setting. Become thoroughly familiar with the characteristics and quirks of the organization you serve and its management. Recognize those basic limitations and the fixed requirements.

Be prepared for opportunities. Know what you want to accomplish and exactly what is required to achieve it. Get the facts. Be able to measure projected cost benefits. Line up support for your plans--support from administrative colleagues and from the users of your information services. Timing is important. Be ready to take advantage of opportunities when situations change.

Be flexible and willing to adapt. When you run into a road block, change your approach. Try a new tack.

Be persistent. Never give up. If you really believe in your plan, stay with it. Be patient, but be persistent. Anything worth having is worth a dedicated effort to achieve.

References

1. "Adapting the IBM MT/ST for Library Applications", by Robert D. Hirst. Special Libraries 59:626-33, October 1968.
2. How To Get It - A Guide to Defense-Related Documents. An IDA Library Project. Arlington, Virginia: Institute for Defense Analyses, October 1973. (AD-769 220).
3. How To Get It - A Guide to Defense-Related Information Resources. IDA Paper No. P-1500. Arlington, Virginia: Institute for Defense Analyses, October 1980. (AD-A090 00).

MINI-SESSION C  
MARKETING INFORMATION RESOURCES

Discussion leader:

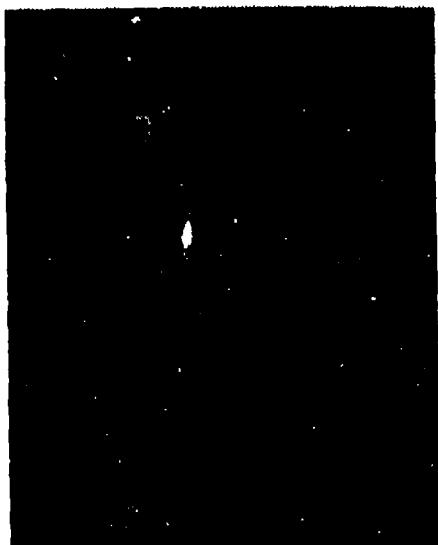
Barbara L. Collier  
Chief, Office of Administrative Services  
U.S. Army Engineer District  
St. Louis, Missouri

The role of libraries in information and resources management was discussed. Librarians, as trained information professionals, must recognize the importance of this concept. They must also be aware of organizational trends and their place in the scheme of things. Discussion on how to "market" themselves and their libraries was presented. Bob Bishop presented an academic view of marketing techniques and assisted in relating them to specific situations.

SPEAKERS

Barbara L. Collier

Robert E. Bishop  
Group Product Manager  
Premise Products  
Long Lines, AT&T  
Bedminster, New Jersey (No papers available)



Barbara L. Collier



Robert E. Bishop

## MARKETING MATTERS

Barbara L. Collier

I often think back to my very first position as a librarian in the branch of a large public library system in upstate New York. It all seemed so easy then: a matter of good books, people, and getting the two together. It was simply selling the books, a few services, and basic information to those persons living within easy access of the branch library. How things have changed! We have gone through an information explosion - automation - incredible speeds, techniques, equipment, and equally incredible costs, training requirements, and pressures. The number of scientific and technical books published per year has risen from 3,500 titles in 1960 to an estimated 16,000 titles in 1980. Information transfer is central to both science and technology. It has been written that since the 1940's, the amount of information has doubled every seven years! And yet, according to AT&T, people still cannot absorb information any faster than about 40 bits a second, probably no faster than stone age people.

It is a complex, confusing world. And in today's world, if you who are librarians and information specialists want to continue in those professions, you will have to market yourselves, your products, and your services. Libraries are not absolutely essential to most companies or government agencies. Most managers do not understand library functions and have no valid way to assess their contributions. It is important that you understand the world of today's managers and professionals and, more importantly, that you enter into that world. Interestingly enough, you are in a unique position in that you have received the best education to face the unusual problems which are now being recognized by management: problems of productivity, rising costs, and management of information.

Until recently, the majority of workers in the United States labor force were blue collar workers. In the past, approximately two thousand dollars were spent each year per white collar worker to improve productivity as opposed to twenty five thousand dollars per year per blue collar worker. According to the Department of Labor, labor costs have been increasing eight to ten percent per year, while office productivity has increased approximately four percent in the past ten years. During that same decade, industrial productivity increased nearly ninety percent. Of the white collar labor force, two thirds of the wage bill is paid to professionals and managers, and about six percent to secretaries and typists. Through the use of word processing and other automated office equipment, we have started to make great strides in increasing the productivity of secretaries and typists. The major problem is increasing the productivity of professionals and managers.

Studies show that professionals spend twenty to thirty percent of their day just searching for information. It has been found that time-savings on the order of ten thousand dollars per professional per year can result from using system designs aimed primarily at facilitating professional text handling and communication. But a major problem is the education gap of managers and professionals. They often do not know how the file systems work, who attends what meetings, or anything about document distribution. Imagine how difficult it is for them to understand the world of distributed intelligent terminals, telecommunications, data bases, electronic mail, files automatically retrieved from mainframes, or computer output microfiche. Middle management, in particular, resists technology because it tends to be rigid, structured, unresponsive to specific user needs, unforgiving of errors, and a constraint on personal creativity.

The problem of managing information is changing the fundamental nature of the office. The information support function is expanding and opening new career paths in supervisory, managerial, and specialist areas. The support staff of a manager will include an information specialist. Unfortunately, today's schools are not preparing people for these new roles. The one exception is the library school. Managers today feel they are in a crisis situation. They need trained personnel to handle the world of office automation and information management. They are reorganizing into units headed by information generalists and staffed by information specialists.

Librarians, too, find themselves in a crisis situation where their very existence is being questioned by some scientists, engineers, and other professionals who are becoming familiar with terminals and data bases and apparently find no need for a middle person. It is interesting to note that when the Chinese write the word "crisis," they do so in two characters, one meaning danger, the other meaning opportunity.

It is not surprising that there is an increase in the number of information specialists. User needs and attitudes are often not considered in the design and implementation of information systems. It is important to recognize the great discomfort and, in fact, frustration most of your users have concerning such systems. To produce and distribute information without proper awareness of the user's background and needs is a wasteful and highly-myopic process. Such needs may or may not be clearly articulated by the potential user. Many users are unaware of the information systems and methods of using the system.

Formal information systems are used less frequently than informal systems because users normally spend as little energy as possible in pursuit of their information needs. Easily accessible sources are first contacted, but others only when perceived satisfactory solutions have not been found. Users normally value quality much more than quantity. The scientists and engineers who produce information also require information to support their own research and development

activities. They find they can no longer rely on their personal education, experience, and local information bases. All too often, it is up to the user to find what is helpful among the largely unstructured collections of knowledge. But, scientists and engineers are not involved in the design of the information systems and many information services do not know how their information is really used.

Most people will agree that someone should be the collector and organizer of specific information. Libraries, of course, have been doing that, but technological advances have changed information structures. Computers, audio-visual aids, and periodicals sent through the mails, etc. are sources of information directly available to users. It is not unusual for today's professional to take a terminal home or on a business trip.

Libraries, as well as other abstracting and indexing services, now account for over twenty percent of the article identifications made by scientists. However, it is estimated that less than twenty percent of all potential users probably make eighty to ninety percent of the actual usage of scientific and technical information.

Today, the "middleperson" in an information system must act as the catalyst as well as the conveyor of communication between producers and users. Someone must filter information to meet specific needs. Libraries may well have to cut back in collection development and professional personnel, and come to rely increasingly on information processing technologies, including computers, word processing, micrographics, and telecommunications, to help increase productivity and reduce operating costs without a corresponding reduction in information services. To meet the needs of today's clientele, librarians must be able to translate their requirements into professionally-designed information services. Such services should include preparation of customized bibliographies, literature reviews and analyses, the design of specialized bibliographic data bases, and the creation of innovative programs for the selective development of information and rapid document delivery.

In the past, libraries have had a corner on the information management market. They have operated on the premise that a superior product will sell itself. Today, the product being sold is not information but, rather, the capability to acquire information. Information is available to users from a multitude of sources. Librarians must learn to think in terms of attracting customers, doing the things that will make people want to do business with them.

There have been some classic business failures in this country because companies were product-oriented instead of customer-oriented. The railroads in the United States did not stop growing because of competition, or because the need for passenger and freight transportation declined. Their problem was that they assumed themselves to be in the railroad business, rather than in the transportation business. They let

others take customers away from them because they did not recognize and meet the customers' needs.

Hollywood almost made the same mistake when it assumed it was in the movie business rather than in the entertainment business. The film companies got into trouble not only because of television's inroads, but because of their own myopia. Hollywood rejected TV, when it should have welcomed it as an opportunity to expand the entertainment business. As a result, studios either disappeared or had to reorganize drastically.

There is no guarantee against obsolescence. If a company's own research does not make the product obsolete, another's will. We all assume that electric utilities have no competition. But when the incandescent lamp came along, kerosene lights were finished. The water-wheel and the steam engine were replaced by electric motors. Who's to say where chemical fuel cells and solar energy will take us?

Mass production of a product usually results in great pressure to move the product. The emphasis is placed on selling, rather than marketing, a more sophisticated and complex process. Selling focuses on the needs of the seller, marketing on the needs of the buyer. Selling attempts to convert products into cash, while marketing is an attempt to satisfy the needs of the customer. What a company will continue to offer for sale will be determined by the buyer, not the seller.

Many organizations concentrate on producing a high quality product or service. In their minds, top quality will retain present users and bring in new users. The problem is that many organizations now produce a high quality offering. Secondly, users may not really be sensitive to quality variations. Finally, other organizations may undertake a more aggressive marketing program, and the organization practicing minimum marketing may be at a disadvantage.

The auto industry has never really researched the customer's wants or changing technology. It only researched preferences between the kinds of things which it already decided to offer. Being customer-oriented means an interest in the total customer needs. Car manufacturers are interested in selling cars, but not in servicing them. While servicing holds enormous sales-stimulating, profit building opportunities, only 57 of Chevrolet's 7,000 dealers provide night maintenance service. A preoccupation with products rather than customers usually means that the product fails to adapt to the constantly changing patterns of customer's needs and tastes.

Basic questions about customers and markets seldom get asked or answered. Selling concerns itself with tricks and techniques of getting people to exchange their cash for your product. It does not, as marketing usually does, view the entire business process as a tightly integrated effort to discover, create, arouse, and satisfy customer

needs. Users are unpredictable, varied, fickle, shortsighted, stubborn, and generally bothersome. It is all too easy for us to sit in our offices with our information and wait for the user to come to us. We have not been sufficiently concerned with what users really need and perceive that they want, but have waited for them to come forward with specific demands. In today's world of technology and information availability, such action will result in obsolescence.

The information planning process should be based on identification and continuous monitoring of changing technology and user needs. A mechanism must be established to facilitate such continuous assessment. Think of an information system as a product that must be designed, developed, packaged, and promoted on the basis of identified needs. Information should not be treated only as something to be distributed. We must be concerned with the characteristics of the product, the characteristics of the user, and the conditions under which the product will be used. We are not dependent enough on user satisfaction. We should also attempt to forecast information needs which do not exist now, but are likely to develop in the near future. Users are varied in their motivation and ability to absorb different quantities of information. Scientists and engineers tend to form a closer communication network among themselves. Others tend to rely on a few people to gather and disseminate important information. Top management's needs are different from those at the lower organizational levels. One thing is certain--everyone needs some kind of information to perform his job.

Marketing is a systematic approach to planning and achieving desired exchange relations with other groups, varied though they may be. The organization that meets the needs of its customers grows and prospers. As it grows, it usually becomes more complex and multipurposed. If a library has not placed great emphasis on measuring and, if need be, defining the needs and desires of the potential user market, the users are apt to be poorly served. A market is a distinct group of people who have resources which they might conceivably exchange for distinct benefits. If one of the parties has nothing that is valued by the other part, an exchange cannot take place. Therefore, it is important to understand what things have value. If no market exists, no product or service will sell. If the market is incorrectly identified, knowing the market need is impossible. If libraries are to continue to serve and prosper, librarians must broaden their views, identify all of their various potential customers and become totally involved in the organization's attempts to manage information.

In order to identify the customers who are marketing targets within your organization, it is essential that you understand the basic organization structure. Almost all organizations have at least three levels, each requiring different information. The first level is the strategic management of the organization. These "top management" personnel are responsible for identifying the "mission" of the organiza-

tion and establishing policies and objectives. Their measuring devices are based on market analyses, profit, and service. They allocate the resources to the organization as a whole and are basically concerned with analyzing and making broad decisions. They are involved with long-range plans spanning five to ten years to support mission accomplishment.

The second level are those involved in tactical management. These resource managers are concerned with standards, procedures, and measurement. They divide the strategic plan into logical subdivisions, allocate resources to carry out these subdivisions and assign responsibility for each function to one person or a group of persons. They are involved in interpreting and communicating, but their overall purpose is to exercise management control. Their planning is not quite as long-ranged as that of top management, being basically concerned with two to five year plans.

The third or operational level of management is the "create level". They determine the specific resource requirements of manpower and materials to accomplish each portion of the organization plan. They assign these resources, compare actual results with projections and take corrective action. They deal with one year plans and budgets and are concerned with getting the job done within the guidelines that have been handed down through middle management by top management, a day-to-day process with many day-to-day problems.

It is important to know where the people with whom you are dealing fit into your organization. People at the operational level are involved in a great deal of communication and real-time information gathering within the organization. Because they are extremely busy creating and doing, they don't have time for sophisticated information gathering; they need factual information to help them get the job done as quickly as possible and in a manner which will meet the requirements of the middle managers.

Middle managers have greater technical capabilities and are more powerful. They, too, are interested in real-time information. They have time to think and reflect, and then communicate. They are particularly interested in trends and how the job gets done, and are usually involved in establishing procedures and standards by which to measure the final products, particularly as they cost money and time. They are, in fact, resource managers.

Top managers are normally not interested in details such as equipment, software, programs, or the nitty-gritty of how the job is accomplished; they are interested in data as a resource to be used with personnel, time, and money. More than anything else, top management is interested in productivity.

You will find more and more organizations making detailed studies of what their people are doing, and how. Such analyses concern defining business processes and data classes, and analyzing systems relationships. Managers are being asked to identify in detail how they manage. Questions usually include the following:

- a. What do you perceive as your organizational mission?
- b. What decisions are made in your organization by you and by your subordinates in accomplishing this mission?
- c. What decisions in your organization are made by your boss?
- d. What determines the kind of decision you refer to your boss?
- e. What are the measurements used by your boss to determine how well you do your job?
- f. What measurements do you use on subordinates?
- g. How do you perceive the future needs in your organization based on the way you operate?
- h. What information or systems would you like to have to assist you in your management function?
- i. Start with a clean slate, zero base. Do not consider current reports or reporting requirements. What information, automated or manual, or data do you generate for use solely in your own organization?
- j. What information or data do you generate for others to use?

How would you answer these questions? Where do you fit in the organization? How are you and your library used by the various levels of management? Should you be simply providing requested information, or, as a trained information professional, should you also be involved with establishing and managing useful data bases within the organization? What is the product you need to market? You are probably already involved with literature reviews and analyses, users surveys, preparing bibliographies, accessing commercial data bases, etc. But what about interfacing with other existing data bases within your organization, designing specialized bibliographic data bases or, perhaps, developing programs for the selective development of information?

In a bureaucracy, organizations tend to make their operations routine, replacing personal judgment with impersonal policies and converting the organization into an "efficient" machine. The bureaucrat is not motivated to innovate or be concerned with problems outside his/her specific authority or with qualifying human factors. Problems are

defined in terms of how the bureaucratic organization is set up rather than having the organization set up to respond to problems--especially peoples' problems. The organization becomes extremely efficient in serving the original market purpose, but that is the weakness. The markets are continuously changing while the organization stands still or tries to catch up. How can you tell if users are satisfied? Who are your major competitors?

Market analysis consists of structure analysis and consumer analysis. Any market consisting of more than one member will have a structure because the members have different needs, perceptions, and preferences. Maintaining current information on the needs, perceptions, preferences, and satisfaction of your customers is consumer analysis.

There are a number of ways to learn the needs of your potential users. The direct method is to ask them through face-to-face discussions, telephone surveys, or with questionnaires. Closed end questions should be included, such as asking them to rank needs or activities. Remember that the needs they present may hide the real needs. It is important for you to see how your markets perceive the library and its products: What image do you project to these various markets? You might focus on a specific event or experience to help them clarify their needs. Indirectly, you can note unsolicited remarks and merely observe your users. Not to be forgotten are the normal library actions of analyzing reference questions, and circulation and interlibrary loan records.

One basic function of a librarian or an information specialist is to help prospective users clearly identify their problems or information needs. Another is to attempt to forecast information needs which do not exist now but are likely to develop in the future. An information manager must also work to gain recognition for the program and advancement for the entire operation. You cannot offer only the standard services but must also contribute to overall operating efficiency of the organization as a whole. Demonstrate the results of your searches from the requester's perspective. Show that material you ordered, catalogued, and circulated led to an action resulting in significant organizational or cost benefits. Numbers or volume of service are not as convincing as is demonstrating impacts, particularly to top management. Suggested activities to assist you in marketing your library include:

- a. Present seminars to all potential users or to smaller groups, with special emphasis on the group's unique needs.
- b. Collect information on the final application of material and/or services you provided by talking with your users face-to-face.
- c. Present such information to management as a measure of impact on the organization.

- d. Publish brochures and pamphlets describing available services, and distribute throughout the organization. Emphasize variety and potential impact.
- e. Make sure that an introduction to the information center is a part of every new employee's orientation.
- f. Become a part of the total organization by thinking that you are and act accordingly.

## BILBIOGRAPHY

- Clayton, Audrey; Nisenoff, Norman. 1977. Potential Impacts of Automation and User Fees Upon Technical Libraries. Arlington, VA: Forecasting International Ltd.; 30 June 1977. 185 p. NTIS: PB 271-418.
- Comer, James M; Chakrabarti, Alok K. 1976. Channel of Distribution Strategy in the Marketing of Two Information Systems: A Comparative Study. Chicago, IL: DePaul University, Department of Marketing; October 1976. 172 p. Available from: DePaul University.
- Hanan, Mack. 1963. Concept Advertising: A New Role for Advertising in New Product Research and Development for Consumer and Industrial Products. New York, NY: American Management Association, Inc.; 1968. 28 p. (AMA Management Bulletin Series, No.109.) Available from: the AMA.
- King, Williams R.; Zaltman, Gerald, eds. 1979. Marketing Science and Technical Information. University of Pittsburgh; 1979.
- Kotler, Philip. 1975. Marketing for Nonprofit Organizations. Englewood Cliffs, NJ: Prentice-Hall, Inc.; 1975. 436 p. ISBN: 0-13-556084-5.
- Levitt, Theodore. 1975.. Marketing Myopia. Harvard Business Review. October-September 1975; 53(5); 26ff.
- Miller, Ernest C. 1967a. Marketing Planning: Approaches of Selected Companies. New York, NY: American Management Association Inc.; 1967. 101 p. (AMA Research Study Series, No. 81.)

MINI SESSION D

CONTRACTING OUT

Discussion Leader:

Francis M. Quinn  
Chief, Technical Library  
Air Force Armament Laboratory  
Eglin AFB, Florida

This presentation updated the 1979 MLW session on "Contracting Out Library Services in the 1990's", with emphasis on current developments. The present political climate concerning contracting of government functions, particularly in DoD, was discussed. A summary of recent events was presented by representatives from GAO, each of the services, and from NASA. Selective contracting, or contracting for needed services, was also discussed.

Overview of A-76 and Air Force Activity

Major Quentin M. Thomas  
Productivity Staff Consultant  
AFMEA  
Randolph AFB, Texas

GAO Viewpoint

Kenneth Hunter  
Assistant Director  
General Accounting Office  
Washington, D.C.

Army and Navy Updates

R. Paul Ryan  
Chief, Closed Literature,  
Science and Technology Information Branch  
U.S. Army Ballistic Research Laboratory  
ARRADCOM  
Aberdeen Proving Ground, Maryland

Stanley Kalkus  
Director, Navy Department Library  
Washington, D.C.

NASA Experience

Ralph W. Lewis  
Chief, Library Branch  
NASA Ames Research Center  
Moffett Field, California

(Papers not available)



R. Paul Ryan



Ralph Lewis

MINI SESSION E  
INFORMATION EXCHANGE

Discussion Leader:

Peter H. Imhof  
Librarian, Ruth H. Hooker Technical Library  
Naval Research Laboratory  
Washington, D.C.

The rapidly changing information-handling picture requires new methods and technologies to be employed by librarians. The effectiveness of future military libraries will in part depend on how well we adapt to these developments. The following presentations were designed to stimulate interest and develop action for future MLW activities.

CLASS (California Library Authority for Systems and Services)  
and RLIN (Research Libraries Information Network) Services

Bill Dempsey  
Coordinator, On-line Services  
CLASS  
San Jose, California

Some Techniques for Resource Sharing

Ben Saltzer  
Naval Ocean Systems Center



Ben Saltzer



Bill Dempsey

THE RLIN NETWORK AND LIBRARY SERVICES  
OFFERED BY CLASS

Bill Dempsey

California Library Authority System and Services (CLASS)

This presentation gave an overview of RLIN (Research Library Information Network) contrasted primarily to OCLC, and the RLIN related services available to CLASS (California Library Authority for Systems and Services) members.

RLIN is a non-profit organization owned by the Research Library Group and affiliated members. RLIN is governed by Research Library Group members: CLASS members are considered users and as such have no official voice in the RLIN decision making process. This is in sharp contrast to the elaborate governing structure of OCLC, where elaborate governances provide a voice to all users through their regional networks.

RLIN is descendant from Stanford University's BALLOTS. RLIN serves two major groups: those large university libraries affiliated with the Research Library Group, and the smaller CLASS libraries. CLASS brokers RLIN services to approximately one hundred libraries, primarily located in California. These are mostly regional, public, special, and small college libraries. These libraries form the Cooperative Library Network within CLASS. CLASS at this time serves over one hundred libraries which have access to most of the technological features available via RLIN.

At the present time, there are three major bibliographic utilities in the United States: RLIN, OCLC, and WLN (Washington Library Network). UTLAS is a Canadian counterpart to these three. OCLC and RLIN are the only national networks. The WLN is confined to the Pacific Northwest.

Two basic services are available through RLIN: shared cataloging, and search only. The shared cataloging service uses the basic cataloging found in the system to produce local cataloging. The outputs are cards and tape. The library's own record is available on-line from the network. The on-line shelf list of individual libraries is one way in which RLIN differs from OCLC, where one basic record serves all on-line users in the on-line mode.

The other service is search only access. This type of service is not available from OCLC. Approximately fifty of CLASS's one hundred or more users have search only access. These users pay a fixed hourly rate for access. They provide no input; they only receive output.

These libraries, for the large part, do their shared cataloging via OCLC whose contract precludes their cataloging participation in RLIN.

One of the major differences between the systems is brought home especially when trying to update records. RLIN stores the library's copy of the record; OCLC only stores one record and its associated holding symbols. If any changes are made in OCLC, all deviations from the original record will have to be keyboarded before an updated local record can be "produced". In RLIN, the local record is recalled and modified with a minimum of trouble. Within RLIN, a library stores its own data base even if the records are already stored in the holdings of one or more other members or locations within the system.

The second major difference in the system is indexing. In OCLC, search keys must be constructed following a pre-determined format of letter combinations. RLIN, at the present time, has two search modes, one for books and the other for non-book materials.

The book system has the same access points as OCLC, i.e., personal and corporate authors, LC number, ISBN, and titles. Additionally, RLIN offers subject and call number access. RLIN uses the "FIND" command modified with the access point designator desired. Authors may be listed in first name, last name, or last name, first name sequence. The system is able to recognize the variant. It also permits the use of truncated terms.

The non-book system, which will be used for the entire system next year, has additional capabilities of title word search and title phrase search. The title word search is a search of a key word index generated from words in the title. The title phrase search uses the exact title for searching. This is most useful if all the words in a title are common words which are excluded from the key word index. For example, The Journal of U.S. History, consisting entirely of excluded terms, can none-the-less be searched in RLIN. Therefore, one major advantage of RLIN over OCLC is that the data base can be searched by title, even if the exact title is not known (presently available in the non-book portion only). Another index term in the non-book system is the production data. This is useful in determining what was done on a certain date or over a period of time. The library data number permits the library to store such numbers as circulation number, acquisition number, or any other local number, thus making library-specific indexes available.

The great amount of local information which can be stored in RLIN is in sharp contrast to OCLC. This local information is available to the libraries on-line. In OCLC, local information primarily is available only on the card or on the transaction tape, not on-line in the system. The advantage of local information available on-line leads to the disadvantage of large duplications in records dealing with the same

title. Theoretically, each location of each library can have copies of the same book, each of which would generate a discrete record.

One feature that can be used to overcome the problem with multiple records to the same book is the ability to determine which library's holdings will be searched or excluded. In the normal sequence of events, RLIN searches the library's own, MARC, and then everyone else's holdings. This reduces the number of duplicate hits and is useful to groups having local arrangements.

When displaying a record, there are four basic formats: FULL -- the tagged version; LONG -- which has the same information as appears on the catalog card; SHORT -- which is a very brief record; and PARTIAL -- which contains information down through the holdings and collation statements. This enables users of the system to display a record format most closely related to their needs.

The local information field has copy specific information. This enables libraries to have their shelf list on-line; e.g., the Los Angeles Public Library has 104 branches which means that Los Angeles Public has 104 locations for holdings. These locations can accommodate multiple copies. The local information fields are indexed.

Future developments include the reconfigured database. This effort will reorganize the database to reduce the storage of duplicate information. The object will be to store unique record segments only and to generate local records from these segments as they are required.

The authority control system will be fully linked to the bibliographic database. This will insure that proper headings are assigned. When headings change, all records previously indexed by the term will be able to be changed in a global command. WLN is the only system offering this feature at the present time.

The Inter-library Loan (ILL) subsystem does not have the sophistication of OCLC's. It will have these capabilities in the future. The present configuration, however, is indexed. Presently the ILL subsystem is serving more in the capacity of a message switching system.

In summary, the major advantages of RLIN include the ability to store on-line large amounts of local data. This enables a library to store copy specific data. In other words, it can have a shelf list. The indexing done by the system is very detailed, permitting detailed retrieval, e.g., subject, partial title, and exclusion terms can be searched in addition to the more conventional access points. The complexity of the information stored provide RLIN with capabilities not found elsewhere.

## SOME TECHNOLOGIES FOR RESOURCE SHARING

Ben Saltzer  
Naval Ocean Systems Center

Why resource sharing? To serve patrons better and help others serve theirs; to enhance ones own work experience; to make collections available to the widest audience at a minimum effort on the part of individuals. Presently, workloads are increasing, while staff to perform them is decreasing. Resource sharing via technology will enable people to increasingly spend more of their time on intellectual efforts and shift increasingly greater parts of their routine work to machines. If items are to be indexed, cataloged, filmed, filed, etc., do it only once and in such a way that many can share in the results of the labor while providing better service.

Increasing productivity means that the amount of work produced per unit of time increases, or that, in the case of the information industry, the same work can be used by increasingly greater numbers of people. Increasing productivity of knowledge workers can be accomplished by buying more sophisticated equipment, such as computers, and by letting these machines file, store, and retrieve. A step up on technology is required: most of today's machines, typewriters, photocopies, telephones, etc., cannot produce significant quantitative advances. In other words, one person cannot generally utilize more than one typewriter or telephone to boost productivity.

Information systems can be defined as a collection of people informing themselves and each other, using devices. Interactions governed by procedures are taking place within environments. These environments are political, social, and economic. The users are a large part of the system. They do not behave systematically but their interactions are vital to the health of the system.

These prototype systems consist primarily of off-the-shelf technology and computer software. The first one discussed was a special data management system developed by MIT for DARPA. This system was an attempt to offset the trend towards increasingly complex and difficult-to-use systems. As sophistication of these systems has increased, so has the difficulty of use.

The MIT approach was to design a system around universally known concepts. The data is organized pictorially. The analogy is to present the universe of the data base in the form of a large mural. To get to the details, one must focus on one small segment of the mural, enlarging it to the desired specificity of detail; e.g., if information is desired about Boston, one can start with the U.S., work down to New England, Massachusetts, and then Boston; then one can focus on the specifics, or if calculations are desired, they can be accomplished by

calling up a pictorial representation of a calculator and then, using the picture, enter data. Touch the function keys of the picture on the tactile sensitive screen to obtain the desired results.

Pages of books, or more accurately, computer file displays in book format, can be turned, or called up by touching the screen in a page flipping mode and a new screen will be brought up. The MIT researchers capitalized on concepts with which more people are familiar, such as flipping pages, calculator operations, maps, directional signs, etc. This reduces the amount of training necessary to use the system; on the other hand, it requires extensive use of complex software to make the system simple to use, and thus be universally usable, not only by information intermediaries but also by the end users.

This system will accomodate all media, making it possible to have multi-media, multi-format information access. Libraries using this concept will be able to become information centers.

Areas of endeavor at the Naval Ocean Systems Center (NOSC) include the Mobile Sonar Technology, Technical Document Information System (MOST TDIS). This project came about as a result of information needs requiring greater specificity than that provided by the Defense Technical Information Center (DTIC). As good as DTIC's indexers are, they cannot be in-depth conversant with all technology, nor would the literature be usable by other than specialists if it were processed to meet their ends. A cooperative resource sharing approach was used in which specialists, with the aid of librarians, developed a thesaurus and proceeded to implement the policies of the MOST Committee. The staff (two to three people) acquires the documents, the DTIC descriptive cataloging and indexing, and augments the DTIC record. The augmented records which meet the in-depth retrieval needs of the researchers are sent back to DTIC and thus become available to the community at large via the Defense Research On-line System. This is an example of resource sharing that could have profound impact on future library/information center capabilities. This concept makes maximum use of general large system (e.g., DTIC) interaction with specialist (e.g., MOST) to use the service that each segment can provide, to develop an end product meeting the needs of the entire community with a minimum of effort. This concept is transferable to other disciplines.

Another NOSC effort involved use of microfacsimile and automatic microform storage and retrieval which enable the sharing of items in collections with remote dissemination.

One phase of this system enables a microform image to be retrieved and displayed either at NOSC or, with proper communications, anywhere in the country. This project ran into security and equipment problems, among others, but showed feasibility of the concept of letting research centers develop areas of excellence and sharing the information gathered for and by specialists with the community at large. Under this

scheme, NOSC in return would have expected to draw upon the expertise of other facilities and thus upgrade the information available to all.

Remote dissemination of records is of interest to the Naval Military Personnel Command. NOSC has been doing work for them in the area of microimage transmission. The system permits the elimination of remote ship or shore facility personnel files. Requests via communication links to central offices enable microform output of personnel records at the remote site. Retrieval at the central location is manual. If desired, the technology of the earlier NOSC project could be incorporated into the personnel system to make the entire retrieval and transmission process automated. Image transmission to CRT will be demonstrated in Washington using a line of sight communication link.

NOSC is also involved in some work for the Army. AMARS (Automatic Microfiche Access and Retrieval System) is a hybrid system using computerized index and facsimile display of records. Speed, efficiency, file integrity and remote dissemination are feasible.

Word processing integration into computer microform systems will permit the production of COM (Computer Output Microform) and CIM (Computer Input Microform). Parts of the concept have been demonstrated by the Library of Congress.



## FEDERAL LIBRARY COMMITTEE REPORT

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How many here are using some of the Fed-linked services at this time? No wonder we got so many calls for estimates this year. I wanted to run through briefly the services that we are offering, for those of you who might not know, and to report on the status of our calls for estimates as of last Monday, when I left home. Things are working very fast this year, and we've gotten calls for estimates back much quicker than we expected, or we're getting many more than we were expecting. I think we were expecting about a 25 to 30 percent increase over last year, and it seems to be running well above that level at this time. As of last Monday, we had 152 calls for estimates back for the OCLC system, and that actually represents over 200 libraries, because as you know, particularly in some of the military agencies, one call for estimates will represent many libraries. For BRS we have had 74 calls for estimates returned., DIALOG has drawn 86, the need data central Lexus and Nexus services have brought in 19, as of last Monday. Orbit received 40 so far, and the information bank, New York Times, we have gotten 27 calls for estimates. Westlaw, which is a new service this year, we have gotten 5 on it already. Legislate, another new service, we have gotten 7 in on that one. One of the groups got some information about EIES (Electronic Information Exchange System). We have a contract with the sponsor of that system, Participation Systems, and we have one group that is already participating in that, and that is a group from the Federal Laboratory Consortium, which includes some of the federal libraries, as well. For ARLAN, we have gotten 9 calls for estimates, and we have 4 calls for estimates for our shared

acquisitions system, DATALIFE, with Sigma Data Corporation. We are expecting by the first of November to have a contract with Dow-Jones, and that will be offered; and we have a procurement on the streets now for tape processing services, primarily for converting OCLC marked tapes to com-catalogues or printed catalogues, and we expect to award a contract on that about mid-November. We do have one other contract which we don't have any calls for estimates yet, and that is with the Washington Library Network (WLN). That one is applicable only to libraries in the five-state northwest region.

So, if you may be wondering about the AACR-2 training, we have Arnold Weinberg on staff right now, working on the training manual for that, and Lucinda Leonard told me that the announcements on the training session will be out sometime this week, so you should be seeing those about the time you get home, and that will give you the information about when we are going to be in your area.

There are supposed to be 15 field trips between January and May of next year for this AACR-2 training. The D.C. area workshops will begin November 4th. Other news, or updates - OCLC has started its acquisitions system testing - we have three of our libraries that are participating; one of them is a military library; that is the Ruth Hooker Naval Research Library; NOAA, and the Department of Agriculture are the other two. At this point, I believe, those people have been trained on the name and address directory and still further training is coming in November for the acquisitions itself, and I think they plan to make that more widely available sometime next spring, after this test period.

At this time, I would like to pause, to see if there are any questions, of situations in our office, before I add some other remarks on other topics.

(Question) The total number of libraries, as of the end of last fiscal year, was about 480; we expect to go well over 500 this next year. I might add that we are getting some unexpected support in that, (a little amusing to us in the D.C. area), GAO decided to do a survey of federal libraries and their cooperation. Back in 1973 GAO had done a study of federal libraries and put out a report that accused us of not cooperating with one another, and, at the time, they cited the Ohio College Library as a good example of how to cooperate, and made reference to the OCLC system back in 1973. Well, about the time that report came out, some federal librarians went together for a pilot project with OCLC, and as far as I can tell, the two activities were not related, it was just coincidence of timing, and obviously, since then the level of cooperation has increased considerably. Three and one-half years ago, when I joined the Federal Library Committee, I think we had 80 libraries participating in the OCLC system. That was the only contract we really had. We had just signed a contract with BRS for information retrieval, and I think we only had about 4 or 5 libraries

participating in that one at that time. So, you can see things have expanded considerably.

Well, anyway, GAO has picked some libraries in the D.C. area and is going around and talking to the librarians. One day Mr. Riley, the executive director, got a call from an agency, wondering what it is that we are, and what do we do, and what services do we offer. It was not one of our members, and Mr. Riley asked why it was they happened to call at this particular time. They said, "The GAO auditors were in here, and they wanted to know why we weren't using your services." I don't think we were expecting GAO to be promoting us, but we welcome all the support we can get.

Some of you may have noticed lately that if you send requests for waivers for information retrieval services to GSA, they will probably come back to you, and you will be referred to our office. GSA thinks that what we are doing is a great idea, too, because it gets them out of a lot of work. They don't want to process the waivers, and, hopefully, you won't have to process them, and you can come straight to us with the interagency agreements.

Are there any other questions about our activities at this point?

There are some things that have come up during the course of this workshop which I would like to remark on, from the Federal Library Committee's standpoint.

One of the issues has been the librarian series, and what is OPM doing about it? In the way of information, the Federal Library Committee, with support from several of the agencies, did sponsor a research project that is finished (and has been finished for a couple of years), and it is commonly referred to as the Sewell report. I know some of you have this already, but OPM was very grateful for receiving that report, which is an analysis of the librarian's role in federal libraries, and they are using that as the basis for their re-evaluation of the 1410-1412 series. Also consideration of information manager positions.

Some other things that we are involved in: I know that many of you have heard of the services we do - the contracts and all that - but there are a number of other things that we are involved in all the time. For instance, there was mention made of the OMB circular on information management in the federal government. We have, with the help of responses from several of the federal libraries, filed a response to OMB on our opinions about that OMB circular. I have not heard a response back from OMB yet, but we do know that they got it, and I think it was about a 40 typewritten page report. Our major concern, to summarize the reaction, was that so many of the references to information in that circular do not seem to really have libraries in mind. They

seem to have more in mind data collected from the public, things that Woody Horton was talking about a couple of days ago, and not so much about libraries. There are some allusions to libraries; particularly, charging for services, and that sort of thing, which we reacted to.

Another thing is that we are an organization of libraries, and therefore, I think that, as an organization, we go through many of the trials and tribulations that the libraries themselves go through, and this workshop has been about information management; a feeling of transition between monographs and journals toward a broader scope of information. We are feeling that very much in our own office in terms of the activities that we are conducting on your behalf. Recently, we have begun to notice that, in addition to the pure contract services, where we sign a contract with Lockheed or BRS or someone else, and you can simply ride that contract, we are getting more and more requests that I will refer to as "information technology requests". For instance, the tape processing services require a certain knowledge of how you can process those tapes to get the com-catalogs or other products off of those tapes.

We have had a good deal of interest and some committee work going on in terms of networking - What can we do in telecommunications networking, interconnecting computer systems among agencies, and that sort of thing. Again, into the information technology area. As a matter of fact, in the past week (I see Tom Russell sitting back there - he is the chairman of our executive advisory council, and the executive advisory council has established a long-range planning task force), that task force met last week to start figuring out how we can go about long-range planning. One of the issues in that session was whether or not to get into other areas of business and support for federal libraries such as the information technology areas, and how far do we carry that. It is the same kind of problems that we have all been facing - you know, the computers are being imposed on us, or we are trying to resist them - I'm not sure what our stand is, but we are facing the same kinds of issues. So, you will probably be hearing more about that. I think the task force is going to report to the EAC at the next meeting on a recommendation for establishing long-range planning, and it is to deal with this sort of issue, the transitions or trends in librarianship or information management that we all have to deal with.

During one of the sessions yesterday, I heard some remarks made, and, we were talking about information managers, and information systems, and technologies, and all this sort of thing, and I get a certain sense of almost fright in some respects, that this stuff is being imposed upon us, and changing our lifestyles in the library. I'm trying to sort through some of these ideas. How does a librarian and information specialist cut into this broad pattern of information technology and information management?

One thought I had, which I thought might be helpful, is that to think of the library as one of the pieces in an information system. Now, by system here, I mean a group of components working together toward a goal. The library is certainly one part of that system. Sometimes we think that the library is the system, and if you are looking from the librarian's standpoint at the organization that also is a system, because you are trying to achieve a goal. But the library itself is a part of an information system, particularly from the user's standpoint. Now if you don't believe you are part of the system, think about what the user does when he can't find the information he wants at the library. He goes somewhere else. It might be the journals that he subscribes to, that he gets at his own desk, it might be his private collection in his office, it might be a clippings file he has stuck in his desk drawer - all of these things go together to make up an information system for that user, the goal being for him to get the information he needs to make the decisions, to do the research work, or whatever it is that his objectives are. I also had the thought that, if we are a part of the system, it would be good to know what part we are, and whether we are doing the best job that we can do as librarians and information specialists within that system.

I am thinking of a personal experience at the moment about what information is collected. I am sitting in the Library of Congress. Now, certainly that is a large collection of information, and I should be able to find most of what I want there. However, to relate another story, a Navy librarian, and I wish I could remember the lady's name at the moment - she may even be here - but I got a call about a month, a month and a half ago, and she said, "What do you know about microcomputers in libraries?" She referred me to an article in Library Journal about the use of a small microcomputer in a small library. Now, I know a little bit about microcomputers, but I wasn't aware that anyone actually has them in libraries, until I saw that article. That started me on a research project to find out what could be done with microcomputers in libraries, particularly small libraries; the ones that we don't think about. You know when we think about the big libraries, we can automate the Library of Congress, the National Library of Medicine, and others, but when you think about a library with 6 to 20 thousand volumes, they are usually considered too small for automation. So, I started looking for microcomputer information in that context. Well, you can't go to the Library of Congress and get information that I needed about microcomputers. You can buy a book that tells you how to program a microcomputer, you can buy a book that tells you how to build a microcomputer, but what I wanted to know was how well does one work; what can you do with it; how much do I have to have in the microcomputer to do some library functions, and will the programming languages on these computers really be able to do the job? I couldn't find that in the Library of Congress. Where I found it was in advertisements in magazines. I went down to my local bookstore, and I bought some copies of Home Computer, computer hobby magazines, filled with ads which are amply telling you what their mini-computer and different

things can do. You start gleaning from these advertisements and little ads, and then you start getting sales brochures, and you look at these things, and you start piecing together what microcomputers are all about. Well, that's a part of an information system, my information system, of obtaining information I needed to solve a particular problem. Now, granted, as librarians, we don't think about gathering sales brochures as information to be stored in a library, but it is a very valuable piece of information, and I am not at all sure that it shouldn't be in a library, in a clippings file, or something, where you computer people can go and look at these things. It takes a long time to write to companies and get sales brochures, and all that sort of thing. I would even appreciate librarian's assistance in classifying some of these ads and programming languages, COBOL, Fortran, for this machine or that machine, and so forth. It would have been very helpful if I had had a collection of the ads, all organized and put together. I am not going to suggest that everybody should actually go out and build a collection of advertisements of microcomputers, but it is an idea about how, if you were to look at the whole information system that your clients use, there may be other things that they are doing now in other ways that you could be contributing to. You could be picking up pieces of that information system, and building your own value to your own clients.

I had a couple of other conversations on this general subject of the trends and apparent transitions from monographs to all kinds of information resources. One of the things that we observed was that, when you are thinking about the future and planning for it, you tend to plan for those things that you, as an individual, can handle best. I don't mean this as a criticism, but as a thought about expanding horizons. If you have a group of ditch-diggers planning a sewer system for a city, there are going to be concerned about how do you get the dirt out of the hole someplace. They are not going to be thinking about all of the engineering problems of that sewer system. The same kind of thing applies with our planning for the future in library and information sciences. We are concerned about the cataloging techniques, it is going to be difficult to consider how to set a telecommunications network among federal libraries, for instance. I think we are going to have to start including - well, we already are, I think we should recognise that, a number of the speakers who have been here in the last two days have been other than librarians - and what is happening is that we are integrating disciplines. We are seeing more and more computer people on library staff, or, the librarians working with the data processing departments within the agency. What you are doing is integrating disciplines. When we are planning for the future, and how we are going to handle video disk and video tape, direct access to motion picture, audio information retrieval, and all these good things that we have talked about, we are going to have to integrate these disciplines. That means that in planning we are going to have to do the same thing. I mention this because of one issue that came up which I have heard a number of times before and which had often gotten into a question of

standard. The assumption is that to be able to cooperate, to be able to share information, that we have to all be working from the same standard. If I might jangle a few nerves, I suggest that that is very important, and I don't mean to dismiss it, but it is a librarian's approach. It is the thing that librarians know best - how to catalogue books and how to organize them. I'm not sure that standards is the main obstacle to information resource sharing. I think that there are lots of things that can be done, even with the standardization that we have now, or, in fact, multiple standards, if you want to talk about monographic and serials cataloging versus technical documents cataloging, and we have at least two different standards there, from a machine system, if you bring in the technologists, the people who know how to build and create the automation aspects of that, they can tell you that you don't have to have a single standard in order to share the information, and for users to be able to understand the differences between the information. I'll give you my favorite example, because it is a personal example. I have worked with, I started my library automation career in a military library - the Redstone Scientific Information Center. There we had microfiche and monographs. The documents and microfiche were all upstairs and they were indexed using COSATI, DDC and NASA (1X), and the books downstairs were indexed using LC subject headings. This was before MARC, so we had to adapt to MARC later, and certainly the AACR cataloging rules, and I guess we were too naive, as information technology people, weren't embroiled in all the issues of standardization and all that, and we didn't know any better, so we built a system that could handle documents and books. Fortunately, I still haven't learned any better. I worked with the NASA scientific information system, which was all technical reports, and I brought the combination of things to the Library of Congress, when I worked on the Scorpio system. Those of you who have seen it know that, as a user, you can sit at a terminal and you can retrieve books, certainly; the MARC records that are in the Library of Congress file, but, using the same commands, you can also get legislative information, digested bills, status of bills, which certainly are not in a MARC format, nowhere close. There are other bibliographic files which loosely relate to MARC and AACR1 cataloging and there are even full-text documents in that system. You, as users don't get to see them, but the congressmen love it, and it is called the issue-brief system. Eight to ten page typed reports that are very handy in making speeches to the congressmen, and they love it. That is also on the same system, same commands, and the user doesn't care what standard was used to input the data. Each of those databases, obviously, has its standard, the MARC file has its standard, the digest has its standard, they don't have to worry too much about it, because there are only ten people doing the inputting, so you have a pretty easy group to standardize. The point is that standards are important, particularly if you are dealing with like items and like cataloging and so forth, where it would be nice if everybody is calling the title fields the same thing, it makes programming data processing a lot easier. But, you do not have to have everybody agreeing to the same thing before you can share information, and

put that information into a common system that a lot of people can use. A little soap-box opera, here.

Anyone have any have any questions or comments at this point? We have plenty of time.

(From the floor) This is not a question, but it is a remark about the establishment of the librarian in the new information resources series in connection with your earlier remarks about Winifred Sewell's report. The Association for Information Managers has also proposed a series definition for the from the 12 to the 15 level for OPM and that is part of the Information Industry Association contribution to this issue. In addition, just a few weeks ago, the Federal ADP User's Group filed with OPM a request that it defer all actions on the two proposed submissions, that is, two proposals, for developing a series for three years, because they felt that the ADP User's Group had a vital interest in becoming qualified, assuming the position that, if the decision were made to implement it right away, they would be out in the cold. So, they have requested a delay of three years for OPM to take action on either of these series.

Any other questions or comments?

I wanted to go back to a list of services that we are offering, and mention one in particular, because of its possible potential, and lack of interest at the moment, mostly because people don't know too much about it. That is, the participation systems, the information exchange system, or computer conferencing system. We have the contract, primarily at the request of the Federal Laboratory Consortium. It has some overlap with federal libraries. It has some interesting possibilities inasmuch as a group of people (an agency, for instance) could subscribe to this service and buy a block of passwords, and set up a computer conferencing facility within the agency. There have been some suggestions that we do this same sort of thing within the Federal Library Committee for communications on policy issues among the executive advisory council members, and so on. The idea is that, among the user's group, an individual could dial into the system, and enter a query (ask for information), and any other participant in the group could answer that, add to it, or comment on it, and these comments could be accumulated as documentation of an issue. The whole thing becomes like an issue brief, if you will, with various people adding their comments and interest to it. As an example, the system is now used mostly by a group of state legislatures. I have forgotten how many states are involved in it, but they put in questions like: What are you doing in terms of legislation on a particular issue, like pollution control, or whatever. The other states will pick up that question and add to it. We have a couple of federal agencies that are also in that same group of state legislatures, who, from time to time, help answer some of the questions. That is the idea of the system, and if there are groups interested in computer conferencing, this is one

service where we might be able to set up a system within that group. What I am pointing out is that this contract does not mean that you would have to participate with the state legislatures. You can set your own group for computer conferencing, or electronic mail. I have seen examples where a person will write a newsletter and then ask others in the group to add comments to it, and so forth. There are many things that could be done with that type of system.

Anyone have any suggestions as to what the Federal Library Committee ought to be doing that I have not mentioned?

The question is, basically, do you get better rates by contracting through us, and can we negotiate a favorable rate on your behalf. The answer is mixed, particularly when we get a new contract. We get the best rates the vendor offers, which are, in most instances, the same rates that a large agency could get. For instance, BRS - when we first signed with them, they had a pricing structure, as many do, wherein if you are willing to guarantee a minimum number of hours per month, you could have a discounted rate. We worked it out with them that we could aggregate the time of all of the participants on our contract in order to meet that minimum monthly requirement. Consequently, some small libraries using the system only one or two hours a month (but needed that one or two hours) were added up to meet the 100 hours monthly minimum. Therefore, even the small users were getting the discounted rate. Other vendors have not allowed that sort of thing; when we first signed with DIALOG, it was on the basis of their straight pricing structure. Each entity that joined had to guarantee a minimum amount, and you chose from their regular structure. The only savings to the agency was in the cost of going through the waiver process and all that, but you were getting as good a rate as if you had gone directly.

With DIALOG, and some of the other agencies that have rigid pricing structures, after a couple of years, during which time the number of subscribers keeps growing, they become much more willing to talk about some sort of arrangement, and we are beginning to make inroads in that area. (?NX?) system is starting to think in terms of reducing the rates; we have to negotiate that with them. We are getting signs that we can have discounted rates. Usually, after a period of two or three years they show us that they can do it. We may have to take on some other responsibilities, in the long run, in order to do this; for instance, the billing practices. If the vendor has to send a bill to each participant, they must include that in their cost, and they are not likely to offer reduced prices as long as they must do direct billing. They say that, if Fedlink could handle the billing, they would be willing to consider a discount. It is up to the executive advisory council and the finance committee as to what happens. Number one, it would be an expense to us, and part of the discount would be taken to cover the paper handling. We would not do it if we could not save you some money in the process. If we had a system in which we could

handle the billing efficiently, and we could get a 10% discount from the vendor, we could pass on a portion of that to the users, and get a more favorable rate for you. We are trying to work that kind of arrangement, and we have been successful in some cases.

I like the question - I don't know the answer, but I like the question. We are very concerned about this in our long-range planning activities. It is not only happening in DoD, but individual agencies are doing the same thing on a smaller scale. I am working, for instance, with NOAA on procurement of a mini-computer library system that would be a network system within NOAA. I am also working with GPO to install a system to handle cataloging production of the monthly catalog. I have a number of other agencies who have asked from time to time about mini-computers and agency networks and so on.

It does raise the question of how to coordinate it. I don't know the answer to that, but I am fairly well convinced that we are not likely to have the Federal Library Committee or any other single agency saying that this is the way it will be - you will build your network according to these regulations, and that sort of thing. We must work with the various agencies that are building systems fairly promptly, and talk about the problems and situations that we are creating for ourselves in terms of communications and resource sharing. That is a very important issue. We are looking at it, we are thinking about what the problems are, and we do not know the answers yet.

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